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LECTURES BY M. DE BLAINVILLE ON COMPARATIVE OSTEOLOGY.

THE COMPARATIVE OSTEOGRAPHY OF THE *SKELETON AND DENTAR SYSTEM* IN THE FIVE CLASSES OF VERTEBRAL ANIMALS,

RECENT AND FOSSIL.

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WITH GRAPHIC DELINEATIONS BY M. WERNER.

EDITED (FROM THE FRENCH) AND ADDITIONALLY ILLUSTRATED WITH NUMEROUS NOTES, OBSERVATIONS, AND DRAWINGS,

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MAMMALIA—(*continued*).

OSTEOGRAPHY OF THE PRIMATES.

PRIMATES. SINGES, SIMIÆ; APES AND MONKEYS (*Pitheci*).

Of the Skeleton in general.

In the skeleton of the primates, the first order of mammalia,—which, as well in this respect as in so many others, approach most nearly to that of man,—the tissue of the osseous system is of a sufficiently dense close texture, especially in the compact (cortical) part, which is thick in all the bones, but chiefly in the long ones, where the medullary cavity is, on the contrary, much contracted.

It has also appeared to me that the epiphyses unite at an early period of growth to the shaft or body of the bones, and that the portions which by their union form certain cavities in the head, face, and pelvis, unite earlier than in the man. The pre-maxillary bones must, however, be excepted; these remain longer separate in the primates than in man; while the contrary takes place with regard to the nasal bones. The frontal bones unite very early along the median line. In other respects the osteogeny or progressive development, growth, and union of the bones in the primates is still but little understood.

The number of separate bones in the skeleton of the primates is always more considerable than in man, not only in the spinal column, on account of the tail, which is frequently of great length, but in the head, because the pre-maxillary remain for a long time separate, whilst they, perhaps, are never separate in man, and especially in the carpus; it is, also, only in apes and monkeys that we find the peculiarity of a ninth carpal bone.

We may also remark in a general way, that the sesamoid bones (osteides, bones of tendons) are very numerous in this group of animals.

With regard to the general arrangement of the skeleton, it is such that, even in those placed at the top of the scale, the vertical or erect position can be maintained only for a moment; the position which is natural to these animals being always more or less oblique on the four limbs, or on the ischiatic tuberosities. This is demonstrated by the position of the occipital condyles, which approach, more or less, the posterior part of the head, and by the general form of the spinal column, as well as its various divisions, but especially the form of the sacrum, where the articulations are almost always parallel to the axis of the body, instead of being in the form of a wedge or keystone of an arch.

The quadruped position displays itself in the form of the limbs, as well as that of the trunk, since both the anterior and posterior limbs are equally provided with five fingers, of which the first is more constantly developed and more completely affexable to the other fingers in the posterior limbs than in the anterior, a fact which we can perceive not only from the form of the great toe itself, but by the tarsal bone with which it is articulated. We also perceive that the feet are not constructed for the erect position, from the oblique direction of the posterior osseous girdle (pelvis)—from the form of the cotyloid cavity, whose margin is more prominent

superiorly than anteriorly—from the inclination of the cervix femoris, being more oblique or more in that of the body of the bone—from the curvature of the femur being scarcely perceptible—from the smaller extent of the femoro-tibial articulation, a less degree of joining or locking in of the foot between the two malleoli—and from a less depth of the pulley of the astragulus—from the diminished projection posteriorly of the calcaneum, and a greater elevation of its tuberosity; lastly, from the greatly-increased proportion of that part of the foot which is moveable.

We remark, also, in the anterior limbs, a disposition to act as supporting organs, from the form of the head of the radius, which is placed more transversely and occupies a much greater extent of the humeral articular surface—from the more and more advanced position of the radius, which forces the ulna back, and from a less participation of this bone (the radius) in the wrist joint.

But this general disposition of the entire skeleton of the primates to approximate gradually to that form peculiar to the quadruped, will be much more evident and easily demonstrated in carrying our examination through each of the great genera or families which constitute the order primates, viz., the singes, simiæ, apes and monkeys of the Old World, which we distinguish with Buffon under the term singes (*pitheci*); the singes, simiæ of the New World, or the sapajoris (*cebus*); the singes, simiæ of Madagascar, or the makis (*lemurs*), and even in the anomalous species, the paresseux (*bradypus*) sloths, and the galeopithèques, or flying lemurs.

SINGES, SIMIÆ (*pitheci*), APES AND MONKEYS OF THE OLD WORLD.

Bones and Skeleton in the Singes, or Apes of Africa.

The skeleton of the singes sufficiently proves, by its uniformity, the union into one genus of the numerous species which are still separated by zoologists; and although we can readily, by investigating this genus with care, find in it the same evident marks of gradation, which the external organs, the nostrils, the ears, the callosities, the nails and the thumb have already shown; yet, to be more clear and brief, we shall take as a type

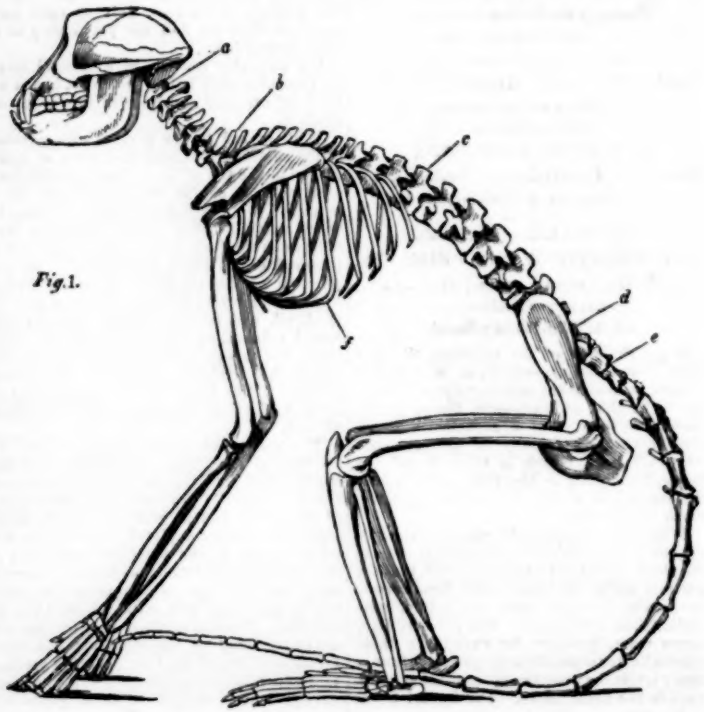
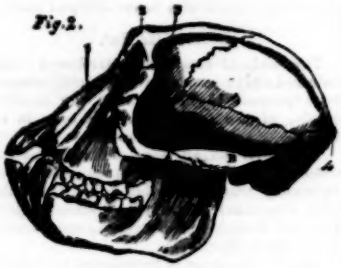


Fig. 1.

of the whole genus, a species which holds a middle grade. This we shall describe minutely, and shall compare with it the other species in the ascending and descending scale, so as to explain at one view the differences and the zoological series formed by the numerous species.

We have selected as a type of comparison of the osteology of apes and monkeys of Africa, the skeleton of the callitriche, or or singe vert, P. Sabæus;* because it occupies nearly the centre of the zoological series, which these animals form, is the most common species in menageries, and is procured with great facility.

Fig.2.



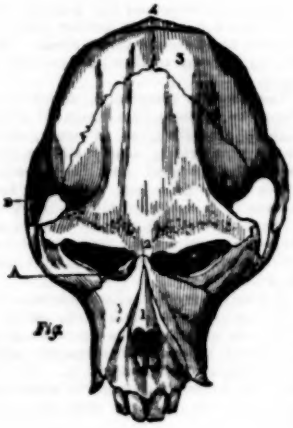


Fig.

* Guenon, callitriche, cercopithecus sabœus. Desmarest, singe vert. Briss., simia sabœa. Linn. Callitriche. Buff., Audle, &c.

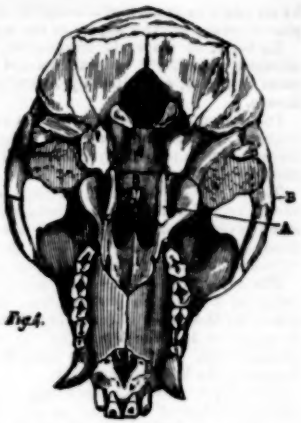


Fig.4.

The Cranial Vertebræ.

The first part of the vertebral column, or the head, is still sufficiently short in the callitriche, and especially in the first cephalic vertebra.

The vomer is very short, elevated rather than elongated; the ethmoidal processes are extremely small, pierced with only one or two large foramina, but forming, nevertheless, a smooth os planum, which extends considerably into the orbit. The nasal bones are extremely short, united to each other in the mesial line at an early period of the animal's existence, and form a single nail-shaped bone, triangular, sharp, and double-bevelled at its free edge.

The second cephalic vertebra (anterior sphenoid) has its body short, its wings slightly extended, although the frontal portion of its arch is large; it is united at an early period in the mesial line, and notwithstanding the marked projection of the orbitar margin has its nasal origin widely sloped, we can readily perceive the traces of a forehead, and the frontal protuberances still perfectly well marked.

The third cephalic vertebra (posterior sphenoid) is likewise sufficiently well developed. Its body provided inferiorly with external pterygoid processes, large and expanded, has its wings sufficiently extended to reach, in the temporal fossa, the angle and the posterior external edge of the frontal, and even slightly the anterior and inferior angle of the parietal bones.

In other respects it is considerably developed, forming a very extensive arch posteriorly; the parietal protuberances are well marked with a sagittal (parietal) crest, prolonging that of the frontal, somewhat more elevated anteriorly than posteriorly.

The fourth cephalic vertebra (occipital) well developed, has its body and arch united

by an angle so open, that it is almost entirely placed on the inferior aspect of the head.

Its body, of moderate dimensions, is terminated posteriorly by rather small particular condyles, separated by a pretty deep fissure.

Its osseous arch is expanded, but slightly convex, and very oblique from below, enlarged right and left by a mastoid bone of considerable extent.

The occipital portion is, on the contrary, small, very slightly swollen; we observe on it, however, a curved line, which is well defined, and large and deep fossæ, above the vertebral foramen, for muscular insertions.

The cephalic appendages are still far from being in a direction parallel with the cranium, so that they form a facial angle of from 25° to 30°, the length of the osseous palate being scarcely more than half the length of the base of the head.

The upper jaw (A) including what the human anatomist describes as the bones of the face, is very short; it enters largely into the formation of the orbit, the openings of which are directed from within outwards, but at the same time complete; this cephalic appendage, or upper jaw, becomes distinctly attenuated anteriorly, even although the canine teeth have attained their greatest development.

The posterior palatine, or internal pterygoid process is small, triangular, well-developed superiorly, pointed and slightly bent inferiorly.

The lachrymal is large, entirely orbitar, and perforated with a large nasal canal, almost complete on its anterior margin.

The molar is proportionally developed; it is large, thick, especially its ascending or frontal process, perforated with a pretty large molar foramen; the zygomatic process is also long and powerful, well arched externally, but not above.

The anterior palatine (palate bones of the human anatomist) are large and transverse, somewhat resembling those of the human skeleton, but a little more elongated.

The maxillary (superior maxillary bones of the human anatomist) are of moderate dimensions, triangular, more elevated than elongated, and perforated with three small sub-orbitar foramina placed almost horizontally.

The pre-maxillary (inter-maxillary bones of the human anatomist) sloping or oblique anteriorly, and, as it would seem, remaining for a length of time a separate bone, has its ascending branch larger than its horizontal; the ascending process rises along the margin of the maxillary between it and the nasal bones, so as to produce an oblique nasal aperture (*see fig.* 3) of considerable size and of an elongated oval form.

From the manner in which the horizontal portion joins that of the maxillary, there results an incisive foramen (*see fig.* 4), which is oval, rounded, of considerable dimensions, and much larger than in the human skeleton.

The lower jaw (second cephalic appendage) is of considerable extent. The temporal bone, which forms the first part of it, and, as it were, its root, and which I here consider as a distinct bone, is considerably developed inferiorly, but superiorly is scarcely raised above the orbitar plate.

The petrous, rocky portion of the bone is so fully developed as to extend anteriorly beyond the body of the fourth cephalic vertebra (*see fig.* 4)—bazilar process of the occipital—it presents the orifice of the Eustachean tube, which is of a rounded form, and at the bottom of a funnel-shaped canal.

Bones of the Ear.

The chain of small auricular bones (ossiculaauditus) commences by a stirrup-shaped bone (stapes) applied against the fenestra ovalis, of the usual form, not only in its tubercular plate, but branches.

The anvil-shaped bone (incus) which is connected to it through the medium of an extremely small orbicular bone, resembles also very much those in the human subject. Its two branches are unequal, and its body large and hollowed.

Lastly, the chain is terminated by a hammer-shaped bone (malleus), bearing also a strong resemblance to the human one, its head rounded, and its handle large, compressed, and considerably arched. Its long process (process of Raw) is also well developed.

The osseous tympanum, which conceals almost completely this chain of bones, is slightly projecting, as it were, cellular, doubling inferiorly nearly all the petrous part of the temporal bone. It extends from before backwards and outwards, forming externally a considerable auditory canal, pressed against the glenoid process, nearly horizontal, and having its external opening nearly circular and of considerable size (*see fig.* 4).

A mastoid process, of considerable dimension (rounded, slightly bulged, but upon the whole *not* well defined as a process, properly so called), extends this temporal apparatus of the lower jaw posteriorly. The styloid process, although reduced to a small triangular tubercle, is very well marked (*see fig.* 4).

The temporal or squamous part (*see fig.* 2) of this our second cephalic appendage, is still sufficiently extensive, its length proportionally greater than its height; it is applied extensively along all the inferior parietal margin; its anterior angle is much rounded; it enlarges and passes horizontally, presenting inferiorly a large articular surface (*see fig.* 4) almost flat, of a square figure, bounded on its external and posterior angle by a glenoidal spoon-shaped process, and over-

lapping or passing beyond a delicate zygomatic process arched externally, but horizontal, dove-tailed above the molar root of the first cephalic appendage, and forming nearly one-half the zygomatic arch.

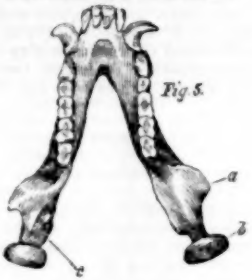


Fig 5.

With regard to the mandibular or second division of the lower jaw, its ascending and horizontal portions (*see fig.* 2) are still more unequal than in the human subject; besides the horizontal branch, equally straight on its two margins, differs especially by the oblique manner in which it terminates anteriorly at the symphysis of the chin, instead of being vertical and even slightly curved outwards to form a chin, as in the human skeleton. The external opening of the inferior dentar canal is also placed close to the inferior margin of the bone, and immediately on a perpendicular line with the second anterior molar tooth.

In respect to the ascending branch, which, as compared with the human one, is perhaps a little shorter and more sloping; its angle is less a right angle by about ten degrees, but its terminal processes have much of a human character; the coronoid process, however, is a little higher than the condyloid, the reverse of the human structure. It is also more parallel than in man.

The internal orifice of the inferior dentar canal is very small, irregular, elevated, and placed in a kind of groove; having a well marked tubercle on its inferior margin for muscular insertion.

General Remarks on the Head.

The head, viewed as a whole, and the relative proportion which the jaws bear to the skull, show that this latter (skull) has clearly a superiority over the former (jaws) by at least a half; to be brief, the basilar line being 108 millimetres, the face (upper jaw) occupies 28, and the skull 80.

The facial angle is from 25° to 30°.

The articulation of the head with the vertebral column takes place towards the last sixth of the basilo-palatine line (*see fig.* 4,) which line is again divided into two equal parts by the palatine margin.

Lastly, the proportion of the transverse diameter of the great occipital foramen and that of the cranium, taken between the temporal protuberances, externally, is nearly as one to five.

The Cephalic Vertebræ.

In respect to the internal aspect of the cephalic vertebræ forming the cerebral cavity, I shall merely observe, that upon the vault or upper surface, digital impressions can with difficulty be traced, with the exception, perhaps, of some slight traces anteriorly and laterally; and that there is not the slightest remains of the osseous lamina above the cerebellum, although the cerebellar fossæ are well marked, and consequently the grooves of the sinuses.

In respect to the base, which, with the palate, forms an angle of from 50° to 55°, and which consequently ascends considerably, we may observe, in proceeding from behind forwards on the body of the fourth (cephalic) vertebra, a large bazilar fossa, perforated on each side by two condyloid foramina, and extending to the body of the third cephalic vertebra; there is also a deep pituitary fossa, in a great measure formed by this vertebra, limited posteriorly, by a large oblique lamina, overlapping the fossa, and forming angles (posterior clinoid processes) extending so as to unite with the anterior clinoid processes portions of the second cephalic vertebra; a transverse and pretty deep optic fossa, scooped from the body of this vertebra, limited by two elevated transverse osseous laminæ, the anterior more prominent, the posterior forming the bases or roots of the anterior clinoid processes, and perforated at each end by a rounded and rather small optic foramen; finally, after a pretty deep groove running between the orbitar vaults, we observe a straight deep funnel-shaped cavity, perforated to the right and left of the nasal partition (there being no *crista galli*) by one large opening passing towards the nostrils.

The lateral portions of the cephalic vertebræ in the callitriche present cerebellar fossæ of moderate dimensions, a considerable petrous portion, forming by a fissure on its posterior margin one-half the posterior lacerated foramen; a middle or sphenoidal cerebral fossa, presenting posteriorly a well-marked anterior lacerated foramen, and towards the median line, the two foramina for the exit of the fifth pair of nerves, the posterior small, the anterior or *foramen ovale* confounded with the sphenoidal fissure; lastly, the right and left supra-orbitar arches of moderate size and sufficiently separated from each other.

The Vertebral Column.

The vertebral column (*see fig.* 1) properly so called, that is, without including the head, which we have just described, is composed of fifty-two vertebræ, viz. seven cer-

vical, twelve dorsal, seven lumbar, three sacral, and twenty-three coccygeal.

These vertebræ, viewed from below, form a column, slightly arched or concave above and towards the neck, then towards the commencement of the thorax becoming very much arched below, the curve diminishing gradually towards the sacrum, where becoming slightly convex underneath, it proceeds to form a new concavity, assuming a perfectly rectilineal form for the remainder of the tail.

Viewing the spinal column in profile, we observe the cervical portion large, owing to the development of the lateral processes; it gradually decreases in dimension about the commencement of the back, and attains its minimum about the eighth or ninth dorsal vertebra; it then gradually increases as far as the last lumbar but one, where a gradual diminution again commences and continues to the termination of the tail.

Lastly, the line formed by the points of the spinous process, commencing about the last cervical, continues to be elevated as far as the fourth dorsal, diminishes a little, and continues straight throughout the whole extent of the lumbar region; nearly disappears in the sacral region, but again increases about the fourth (third) coccygeal vertebra, again to decrease to a mere point in the terminating vertebra.

The cervical vertebræ constitute but a small segment of the whole length of the trunk.

The atlas has the form of a ring without spinous process, without any rudiment of an inferior one. The transverse processes are straight, slightly rounded, recurved from above, and perforated with two foramina.

The axis has its odontoid process well developed; the spinous process projecting and rounded, the transverse processes perforated at their base, and very much bent downwards and backwards.

Of the other five cervical vertebræ, which are arranged like the tiles of a house, from before backwards, the four intermediate are excessively pressed together, the transverse processes deeply bifurcated, and perforated at their base. In the last, or fifth, this transverse process is double and dilated inferiorly, hatchet-shaped in the sixth, which differs from the others by the smallness of the foramen at the base.

The seventh cervical vertebra has its transverse process without bifurcation (or perforation); the spinous process is pointed, sharp, and moderately elevated.

The dorsal vertebræ form a segment of the whole column, equalling nearly twice and a half that of the cervical, their bodies decreasing to the eighth, increasing afterwards, and assuming the character of the lumbar vertebræ. The transverse processes of the first vertebra are largest, decreasing to the eighth; they increase a little again, and diminish and disappear at the last. The spinous processes, high and elevated, decrease from the first rapidly, as far as the ninth; then increase slightly in bulk, and incline more and more from before backwards; but the tenth scalenoïde (a triangle whose three sides are unequal) suddenly becoming vertical, and those of the eleventh and twelfth dorsal vertebræ assuming slightly the characteristic of the lumbar vertebræ; their spinous processes enlarge and incline forward.

The lumbar vertebræ form a segment of the spinal column, almost equal to that of the dorsal and cervical together (*see fig.* 1.) Their bodies are elongated, a feature increasing gradually from the first to the fifth, and then gradually decreasing, particularly at the sixth and last, or seventh.

The spinous processes enlarged and elevated gradually, from the first to the sixth inclining forwards.

The transverse processes are developed both in bulk and length, having a horizontal direction from the first to the sixth. With regard to the seventh, it is narrower, and, as it were, bifurcated. I ought, however, to remark, that these processes present considerable variety in form.

Lastly, the articular processes differing in appearance from the transverse, are always simple (smooth) anteriorly, but being placed externally of the posterior one, they lock in by a styliform process which doubles the articular surface externally, with the exception of the two last.

The sacral vertebræ (only three in number)

form a sacrum, with edges almost parallel, articulated with the iliac bones by means only of the enlarged transverse process of the first and half that of the second sacral vertebræ; those of the third being perfectly free and placed near the posterior margin of the body of the vertebra.

Of the crests formed by the series of spinous and articular processes, that of the spinous is much more elevated.

Lastly, there are only two pair of foramina conjugata, of which the posterior are the largest.

The coccygeal vertebræ (*see fig.* 1) form a tail which equals, at least, the length of the rest of the column, including neck, back, and loins; the coccygeal vertebræ decrease, both in their length and their breadth.

The three first alone are complete, having an osseous arch and all the processes, the tranverse directed backwards; the first the longest, the two others the broadest.

All the other coccygeal vertebræ are of an elongated square form, contracted in the middle, with a crest more or less marked at each angle, cruciform and right angular. They increase in length as far as the eighth, decreasing afterwards insensibly.

The last of the three complete coccygeal, and the three which immediately follow, are provided with a small V shaped bone (*see fig.* 1), the central pair being larger than the first, and especially than the last.*

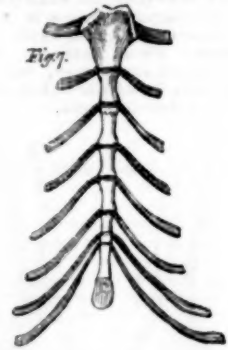


Fig. 7.

Fig. 7.

* M. de Blainville has omitted introducing and describing, in its proper place, the hyoid apparatus, and which it will be observed (*see* p. 188 of THE LANCET) he considers as the sub-gutteral portion of the sternebræ. I have, therefore, taken the liberty of supplying the defect.—*R. K.*

Bones composing the Thorax.

The sternum in the genus callitriche is of considerable length, since it equals that of eleven and a half dorsal vertebræ. It is nevertheless formed only of eight sternebræ, generally pretty straight; the 2, 3, 4, 5, and and 6, being very similar in form, contracted in the middle, thickened, or rather dilated slightly at each extremity, increasing in length and even breadth to the fourth, then decreasing to the seventh, which is the shortest; the two terminal sternebræ being always excepted as presenting considerable diversity in form and size.

The anterior or manubrium more closely resembles the other sternebræ, but it is much thinner and narrower posteriorly than anteriorly; its anterior angles are depressed for the sterno-clavicular and first sterno-costal articulations; its inferior aspect is also more convex.

The posterior or xiphoid process is long, straight, compressed, and terminated by a considerable flattened spatula-shaped cartilage.*

The thoracic appendages or ribs (*see fig.* 1) in the callitriche are only twelve in number, of which eight are sternal and four asternal: they are generally considerably compressed, arched, and oblique, with a tendency to become imbricated, when they are made to approximate each other. Their posterior margin is obtuse and grooved.

The first rib is the shortest and the broadest, the seventh is the longest, and the four last alone are asternal. The first eight articulate with the sternum by means of a longish narrow cartilage, or sternal appendage. The first pair articulate with the dilated anterior angle of the manubrium (*see fig.* 7), the intermediate between two contiguous sternebræ, and the last or eighth between the seventh sternebræ and the xiphoid.†

By the union of the dorsal series of vertebræ with the series of sternebræ, by means of their appendages, there results a thorax (*see fig.* 1), short, though large transversly, separating considerably the thoracic limbs, which we shall immediately consider.

Of the Extremities.

The two pairs of limbs (*see fig.* 1) are not quite of equal length, the anterior being a little shorter, as well with regard to their

* We sometimes find thirteen ribs; that is to say, one additional sterno-vertebral rib, and in this case there are only six lumbar vertebræ.—*M. De B.*

† It also not unfrequently happens in man that the cartilage of the eight rib is distinctly articulated with the sternum. Two or three such specimens generally occur during a session in the dissecting-rooms, and in such the sternum has appeared to be somewhat longer than usual.—*R. K.*

total length as to the four principal parts of which they are composed, and especially the two intermediate, viz., the arms and fore-arms, as compared with the thigh and leg.

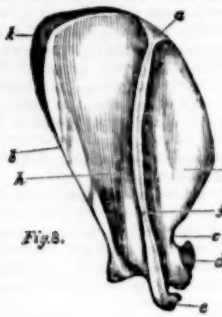


Fig. 8.

Fig. 9.

The scapula is large, and in general elongated; its internal aspect slightly concave, its external convex; the three margins are very distinct, and the anterior as well as the superior is round; the *spine*, which extends from the vertebral margin beyond the glenoid cavity divides the external aspect into two unequal fossæ. The fossa supra spinata is, however, of considerable extent.

The acromion process is well developed, but notwithstanding smaller than in man; the coracoid process is, on the contrary, perhaps stronger, but unquestionably more bent, and more depressed inwards.

Fig. 10.

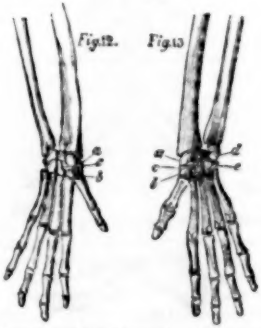
Fig. 11.

The clavicle already presents less proportional development, but still its double curvature is sufficiently well marked.

The humerus, considerably bent superiorly, is of sufficient length, since it equals that of all the dorsal vertebræ; its head is hemispherical; its two tuberosities well marked, and separated by a deep groove; its body subtetragonal in its superior half, by the manner in which the ridges for muscular insertion are defined, becomes more compressed inferiorly; its inferior articular surface is oblique, presenting a well-rounded tuberosity, at the side of a complete pulley, of comparatively larger proportions; the anteri.. and posterior fossæ are of moderate dimensions, as also the tuberosities, the external of which, in the form of a sharp ridge, ascends high on the shaft, and the internal, more sloping, is not perforated with a hole. The forearm equals in length, as nearly as may be, the arm. The radius proportionally rather delicate and bent, commences superiorly by a head, which is round and cup-shaped, supported by a well-defined neck or stalk, and this is followed by a well-developed tuberosity; its body slender, at first enlarges, and extends into a triangular form inferiorly, terminating in an oval articular excavation, with a well-defined groove for the tendon of the radial extensor muscles.

The ulna (cubit), nearly equalling the radius in strength, from which it is widely separated, is somewhat pressed, but narrow superiorly, sub-cylindrical, and slender inferiorly; its olecranon process is short and thick; its smaller sigmoid cavity is wide and situated almost anteriorly, and its greater sigmoid cavity deep, close, and a little oblique; its inferior styloid process is rounded and well-developed.

*Fig.*12. *Fig.*13



The hand, evidently much shorter on the whole than the foot, has a more complex carpal region, than in any of the other mammalia.

The scaphoid bone (navicular) has its internal process well defined.

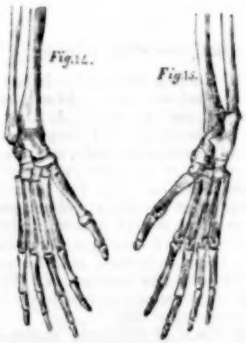
The semilunar (os lunatum) preserves still pretty nearly its characteristic form.

The cuneiform (os triquetrum) is more of a trapezoidal or four-sided figure; besides, it presents a large articular surface for the ulna.

The pisiform is not well named; it is well developed, and resembles rather the posterior part of the calcaneum, or a short sternebra.

Lastly, in the first range, between the scaphoid, semilunar, trapezoide, and os magnum, we find a fifth distinct and separate bone, which looks like a part of the scaphoid, and which has in a slight degree even its form.

The trapezium, which commences the second row, is much stronger than the trapezoides; it is slightly depressed, and of an irregular square shape; its internal margin is in connection with the sesamoid (osteide) of the large adductor tendon of the thumb, considered, unfortunately for Daubenton, as a bone of the carpus. The trapezoides is very small; its form irregularly rhomboidal. The os magnum resembles a short, reversed metacarpal bone; its rounded head articulates with the scaphoid, and semilunar; the other (distal) extremity slightly pulley-shaped, articulates with the third metacarpal bone (longest finger). The unciforme bone is much larger than the magnum; it is sub-triangular with its characteristic process, but slightly resembling a hook. The metacarpal bones are long and slender, though less so than the metatarsal. The first, the shortest and most delicate, can be recognised by its carpal articulation, large, depressed, and distinctly transversely concave. Of the three succeeding bones, the middle is a little longer and stronger than the others, having their carpal extremity much compressed and wedged. Lastly, the fifth is curved or bent, and prolonged towards its external angle by a very considerable process.



The first (proximal) phalanges are of medium length, slightly arched, proportional to the metacarpal; the fifth, or that of the little finger, being distinctly more delicate. It is worth remarking, that these proximal phalanges are longer than the two following phalanges put together, whilst in the human structure they are not so long. The second (middle) phalanges are very short. The third (distal) phalanges, or nail bones, which are still shorter, are depressed, but not well expanded at their free extremity. The posterior limbs, as we have already remarked, are evidently much longer than the anterior.

Of the Pelvis.

The pelvis, or osseous girdle *(see fig. 6)*, in its iliac and ischiatic portions, is placed altogether in the same direction with the spinal column. The pelvis, as a whole, is elongated, the first cavity (false pelvis) being very oblique, very incomplete, *i. e.*, open transversely; the posterior cavity (true pelvis) being, on the contrary, much contracted, particularly its posterior orifice (outlet). The iliac portion of the ossa innominata is, moreover, narrow, much excavated, and, as it were, channel-shaped externally; perfectly flat internally, with a large and oval sacro-iliac articular surface. The pubic margin is short, slightly excavated, and without a spinous process.

The symphysis is long and oblique, in consequence of the inferior branch of the ischion, which forms a part of the true symphysis and increases it.

The oval hole (foramen ovale, foramen obturatorium) is large, and slightly of a triangular form. The ischiatic tuberosity is oblique and extended, but of moderate dimensions. The *spine* of the ischion is large, and the branch which separates the spine from the tuberosity is long and rounded. The cotyloid cavity, slightly extended longitudinally, presents a large notch inferiorly, and scooped out to a slight extent on its upper margin; the anterior more especially, but also, in some degree, the posterior margin, are thick and prominent.

The femur, considerably longer than the humerus, equalling in length not only all the dorsal vertebræ, but the first lumbar included, is at the same time rather slender, sub-cylindrical, and considerably arched throughout its whole length.

Its head is supported on a short and nearly transverse neck, slightly compressed; the great trochanter is of considerable size, thick, elevated, rising above or passing the line of the head, having its internal aspect excavated by an oblique digital cavity, deep, and much elongated, even as far as the superior root of the lesser trochanter, itself thick and very prominent.

The linea aspera is, on the contrary, but little marked.

The inferior (distal) extremity of the femur is rather small, and consequently the

articular surface which terminates it. The anterior pulley is, nevertheless, deep, though not much elevated on the femur; the two condyles (very perfectly separated by a distinct notch) are unequal, the internal evidently more sloped than the external, and the line of articulation is somewhat oblique.

The leg is nearly the length of the thigh, and the two bones composing this part of the limb are slender. The tibia, slightly arched anteriorly, and compressed in the upper half, does not enlarge transversely until towards its distal end, so that its body is more triangular than three-sided, the anterior angle being prominent.

The articular surface, on its proximal end, is small, and is more extensive on its outer than its inner division, the distal, or inferior articular extremity of the bone, is large, presenting the form of a not well-defended counter-pulley, a little more oblique posteriorly than anteriorly; and overlapped internally, by a process or malleolus, thick, three-sided, and prominent.

The fibula is still, proportionally, more slender and straight than the tibia, from which it is, however, considerably removed; it is nearly three-sided, the angle most distinctly marked being anterior and internal. Its proximal extremity, large and flat, is articulated very high on the tibia; its distal inferior extremity, of a triangular shape, forms, by its external prolonged angle, a malleolus nearly as prominent, but neither so long nor so close as the internal malleolus.

The foot, as a whole, is considerably longer than the hand, and this in relation to all its parts; the difference amounting to more than a third.

The tarsus is, at least, as long as the metatarsus. The astragalus resembles strongly the human type by the size of its pulley, which is, however, a little more oblique, by the form and extent of the articular facettes with the calcaneum; but its head is much more detached, and is directed more obliquely inwards and forwards, which indicates a greater extent of movement in that part of the tarsus.

The calcaneum has also a strong resemblance to the human one, but the extent of its posterior process beyond the line of the tibia is evidently less, and the tuberosity is somewhat grooved upwards, and, consequently, its inferior tubercle is not developed.

In other respects, its astragular articular surface is considerable divided distinctly into three oval or rounded facettes; that for the cuboid is semi-lunar, almost transverse, and slightly convex.

The scaphoid is thick, and its three cuneiform articular facettes are extremely distinct; that for the second are the smallest, that for the first, or internal, nearly equalling in extent the other two.

The four bones of the second row of the tarsus are also exceedingly similar to the human, only the first cuneiform is much less anterior and more internal than the others, and besides its anterior articular surface is more convex.

The cuboid strongly resembles a sternebra that is much contracted in the middle, and enlarged or swollen out at each extremity; the distal extremity unequally divided into two, or even three, facettes, of which the inner is the smallest, and the median distinctly larger than the external. The metatarsal bones are much longer than the metacarpal, perhaps to the extent of a third; they are, on the other hand, more slender, and perhaps even more arched inferiorly; but, besides, the second is more arched from within, and the other three externally. In other respects, the tarsal extremity of the three intermediate metatarsal bones is sufficiently like that of the metacarpal, only it is more oblique and flatter, and less grooved, and in their lateral articulation they are imbricated to a greater degree by their external edge.

In respect to the first metatarsal bone, or that supporting the great toe, it is similar to that of the thumb, only it is evidently proportionally stronger and longer, to the extent of more than a third. The fifth metatarsal also has its external tuberosity stronger and more prominent, external to the cuboid, than the corresponding bone of the metacarpus. In respect to the proximal, middle, and distal phalanges, they are also a little longer, a little more slender than in the hand, but they preserve, individually, nearly the same proportions; the great toe following the increase of its metatarsal, that is to say, being evidently stronger, and particularly the distal phalanx, or that supporting the nail.

Description of the Drawings.

Fig. 1. Guenon callitriche (singe vert. Briss. simiæ sabæa, Linn. After a natural skeleton prepared by Mr. F. J. Knox, and now in the museum, Old Surgeons' Hall. The animal was an adult male, and measured from the vertex of the head to the tip of the tail, 3 feet 2 inches. The fine lines on the dorsal margin of the spinal column point to the first cervical, dorsal, lumbar, and coccygeal vertebræ, and consequently mark out not only these vertebræ, but the various regions comprised by each series. The line on the thoracic aspect points to the eighth or last sterno-cortal rib.

Fig. 2. Head of the same skeleton (reduced one-half), profile view. 1. Nasal bones; 2. Frontal bones; 3. Sphenoid; 4. Occipital. A. Zygomatic process of upper jaw; B. Zygomatic part of lower jaw.

Fig. 3. View of the same from above. 1. Nasal bones; 2. Frontal; 3. Parietal; 4. Occipital; A. Internal orbitar root of upper jaw; B. Zygomatic part of lower jaw.

Fig. 4. View of the same from below. 1. Vomer; 3. Posterior sphenoid (third cephalic vertebra); 4. Bazilar process of occipital (fourth cephalic vertebra). A. Zygomatic part of upper jaw; B. Zygomatic part of lower jaw.

A. Right canine tooth, full size, removed from the jaw and viewed from its buccal aspect.

Fig. 5. Lower jaw (mandibular portion), reduced one-half, viewed from above. *a.* Coronoid process; *b.* Condyle of right side; *c.* Probe in the posterior opening of the inferior dental canal.

Fig. 6. Pelvis and lumbar vertebræ from the same skeleton, reduced one-half, viewed from below (abdominal aspect). *a.* Iliac; *b.* Pubic; *c.* Ischiatic portions of the left os innominatum; *d.* Foramen obturatorium; *e.* Cotyloid cavity; *f.* Sacrum; *g.* Seventh or last lumbar vertebra.

Fig. 7. Sternebræ (thoracic), from the same skeleton, reduced one-half, viewed on its peripheral aspect. A. Sternebræ (gutteral), from the same skeleton, full-sized, viewed in profile; *a.* Body; *b.* Cephalic appendages; *c.* Pharyngeal appendage.

Fig. 8. Scapula (right) reduced one-half from the same skeleton, viewed on its peripheral aspect. *a.* Dorsal margin; *b.* Axillary margin; *c.* Cervical margin; *d.* Coracoid process; *e.* Acromion process; *f.* Spine; *g.* Fossa supra-spinata; *h.* Fossa infra-spinata; *k.* Cartilaginous epiphysis, broadest in the situation of the inferior angle of the scapula.

Fig. 9. Same scapula viewed on its costal aspect. *m.* Fossa sub-scapularia.

Fig. 10. Clavicle right, reduced one-half, from the same skeleton, viewed on its cephalic aspect. *a.* Sternal end; *b.* Acromial extremity.

Fig. 11. Same bone on its thoracic aspect.

Fig. 12. Hand, right, reduced one-half, from the same skeleton, viewed on its dorsal aspect. *a.* Scaphoid bone; *b.* Trapezium; *c.* Bone peculiar to the carpus of asses and monkeys, first discovered by M. de Blainville.

Fig. 13. Same hand viewed in its palmar aspect. *d.* Pisiform bone; *e.* Unciform bone.

Fig. 14. Foot, right, reduced one-half, viewed on its dorsal aspect.

Fig. 15. Same foot, viewed on its plantar aspect.

COURSE OF LECTURES
ON THE
PHYSIOLOGY AND PATHOLOGY OF THE BLOOD,
AND
THE OTHER ANIMAL FLUIDS,
DELIVERED IN THE SESSION OF 1839-40,
AT THE
School of Anatomy adjoining St. George's Hospital,

By HENRY ANCELL, Esq., Surgeon.

Lecture 4.—*Proximate principles of blood continued.—Gases recurred to: carbonic acid.—Saline matter of blood: soluble salts, with alkaline bases; insoluble salts, with earthy bases; doubtful existence of lactate of soda in blood; great proportion of chloride of sodium.—Neutral fatty substances: cerebrine; serroline; cholesterine.—Fatty acids: oleic; margaric; volatile odorous principle.—Colouring principles: hematosine; yellow colouring matter; blue colouring matter.—Aqueous and alcoholic extractives: their non-existence as distinct principles.—Method of analysis.—The proximate principles of the animal tissues and fluids exist in part ready formed in the blood.—Tables of proximate and ultimate principles.*

Gentlemen:—The *post mortem* examination of the *tissues* and *organs* of an animal body can only be accomplished when the disease has superceded all remedies, and the individual is beyond the reach of art; when the best devised curative intentions, and the most consummate skill of the physician, are unavailing. The *post mortem* examination of the *blood*, on the contrary, may be effected during the life as well as after the death of the patient. The chemistry of the blood constitutes, in part, its post mortem examination. In my last lecture, our attention was directed to the water, albumen, and fibrine, which together form about 980 of every 1,000 parts; to-day we have to consider the remaining proximate principles, which are scarcely less important, although they make 20 parts at most in the 1,000 of this remarkable fluid.

I find, on recurring to my notes, that I omitted to mention one or two important circumstances respecting the gases of the blood. Girtanner constantly found that venous blood afforded carbonic acid when received into oxygen gas; but I shall have to refer to the experiments of this physiologist when I describe the differences between venous and arterial blood. In order to obtain carbonic acid from venous blood, Dr. Stevens employed a double-necked pint bottle, to which an ascending and descending tube were connected. The whole being filled with hydro-

gen gas, blood was received from a vein through the ascending tube into the bottle, the descending tube was immersed in barytic water, and the whole apparatus was placed under the receiver of an air-pump, so that as its air became exhausted, the hydrogen, as well as any gas that might escape from the blood, would pass through the barytic water. When this experiment was performed without allowing *time* for the hydrogen to act on the blood, no carbonic acid was given off; when, on the contrary, the hydrogen was allowed to remain in contact with it for an hour, and then submitted to the action of the air-pump, the barytic water was immediately rendered turbid, and since there was no other source of carbonic acid, it is inferred that the hydrogen gas promoted its separation from the blood.

The latest experiments on this subject are, I believe, Schultz's. He *completely* filled a bottle with warm blood, flowing from the vein of a horse, and hermetically sealed it; the fluid diminishing in volume as it cooled, produced a perfect vacuum in the upper part of the bottle, and in proportion as this took place, bubbles of air escaped and filled the vacuum. According to Schultz, the air thus extracted from venous blood is carbonic acid, and that from arterial blood oxygen, mixed with more or less of the former gas. We have the concurrent testimony of Bischoff, Bertuch, Scudamore, and Collard de Martigny, that venous blood contains carbonic acid gas. Hoffman finds that it is evolved when this fluid is placed in oxygen, hydrogen, or nitrogen gas; and it appears, as first observed by Dr. Stevens, that it is not loosely, but intimately, combined, sometimes requiring a superior attracting power to set it free. The existence of carbonic acid in the blood is one of the most important facts in its chemical history.

Saline Matter of Blood.—The salts seem to have been distinctly noticed by Guglielmini, and first carefully examined by Rouelle in 1776. Since that time they have been attended to by Berzelius, Marcet, and other chemists, but they were originally regarded as extraneous substances. Since they are never absent from the blood, and they occur in nearly uniform quantities, a more correct opinion is now entertained; in fact, they are known to be essential component parts of this fluid. On recurring to the tables, we find these salts to be numerous; some occur in very minute quantities, and there are great discrepancies in the accounts given of them in the different analyses of the blood extant. The knowledge of their exact nature is arrived at to a great extent theoretically, and very different re-agents and processes are employed by different individuals for the purpose.

Following M. Denis's and Dr. Rees's directions, the salts of the blood are to be obtained by *incineration*, conducted in a platinum crucible over a spirit-lamp, and either a portion of the entire blood, or of any of its parts, may be employed. If we employ the alcoholic and watery extract, we obtain a residue of alkaline salts. If we incinerate the clot, we find earthy salts and iron. On employing entire blood, we, of course, obtain a mixture of all. Considerable care is necessary in conducting the incineration, and decarbonising the mass. Whether we obtain them from the whole blood, or from its extracts, they may be divided into two groups, according to their solubility in water: into the alkalies and alkaline salts, which are *soluble*; and the earthy salts with iron, which are *insoluble*.

The salts of the blood are all found in inorganic bodies, except the margarates and oleates; and, as remarked by M. Denis, it would perhaps be better to confine this class to substances which remain fixed at a red heat. The nature of the ash is to be determined by the usual re-agents employed in inorganic chemistry. On pursuing this qualitive analysis, the existence of soda is proved without doubt; in fact, the solution of the ash in water always gives an alkaline reaction. Some chemists believe that the soda exists in its caustic state; and others, that it is totally or partially neutralised by carbonic acid. M. Denis concludes from his experiments, that the soda of the ash is neither free, nor in a state of carbonate, as it exists in the blood, but that it is in part combined with the albumen, and in part with the fatty acids, which we shall have presently to consider, in the state of bi-salts, the oleate and margarate of soda extracted from serum being acid. He remarks, that the serum, separated from the blood, gives an alkaline reaction to test paper, but it is questionable whether the blood is alkaline in the body; that no direct experiment has been made to prove this, and we have better reason to regard it as neutral than otherwise, until its alkaline state is proved. Dr. Stevens's observations coincide with those of Denis on this subject, but they are opposed by those of Mr. Thackrah, and some others. Denis says, after coagulation, the blood becomes alkaline; but when we reflect on the feebleness of the combination of albumen and soda, and the partial decomposition which occurs during coagulation, a portion of soda, which was previously neutralised, must necessarily be set free, and its alkalinity is thus a post mortem effect.

M. Denis states that the existence of *hydrochlorate of potassa* is rendered impossible by the blood containing more sulphuric acid than is necessary to saturate its potassa, nor could he succeed in obtaining chloride of potassium from the ash. It is also very unlikely that any salt, with an *ammoniacal* base, should occur with the other saline constituents in this fluid. Ammonia most probably results from spontaneous decom-

position before the analysis, or is produced in the process adopted to determine its presence. According to M. Denis, therefore, sulphate of potassa, sulphate of soda, phosphate of soda, chloride of sodium, and soda, are the only fixed soluble salts with alkaline bases that are obtained by the incineration of blood, the soda, as I have already stated, existing previous to the analysis in combination with the animal acids and albumen. Other chemists, as we see by Table I., have admitted chloride of potassium, hydrochlorate of ammonia, carbonate and lactate of soda.

To determine the nature of the insoluble or earthy residue, M. Denis dissolves the substance, which remains after the separation of the soluble salts, with alkaline bases, in hydrochloric acid, and then proceeds as in inorganic chemistry; he infers from his repeated analyses that this residue contains phosphate of lime; lime, magnesia, and oxide of iron, and believes that the lime and magnesia exist in combination with the albumen, in the same manner as the albuminate of soda. The oxide of iron is not a salt, and will be referred to under another head.

According to Berzelius, *lactate of soda* is a proximate principle of blood, and his view has been adopted by the greater number of chemists. It is obtained by acting with boiling water on coagulated serum, evaporating the liquid, re-dissolving the residue in alcohol, and again evaporating. M. Denis objects that this extract contains the saponaceous and yellow colouring principles, which are not taken into account by Berzelius, and together may very easily be mistaken for lactate of soda. He has been unable to detect this acid or its salts in healthy blood, and owing to the readiness with which it is formed in animal fluids, abandoned to themselves, he thinks it an accidental result of the analysis without having pre-existed; and as this acid and its salts always occur in combination with osmazome, a principle, the existence of which in blood is very doubtful, we find the lactate of soda omitted altogether in Table II.

These saline constituents are altogether about 6 or 7 parts in every 1000, the proportion of chloride of sodium being more than the sum of all the rest. This seems to be agreed upon by all parties. If the views of M. Denis should prove correct, this complicated analysis will be considerably simplified, and in the present state of animal chemistry they ought not to be too hastily rejected. We must not forget, also, that the process of incineration admits of some doubt as to whether the sulphur, phosphorous, and carbon, may not be acidified during its progress. Finally, Dr. Stevens has made some most important observations respecting the salts of the blood in diseases, which we shall have to attend to when the subject of its pathology is before us.

Considerable differences of opinion obviously exist respecting the nature and modes of combination of the saline substances contained in the ash. Without entering into the minutiæ of the analysis, I place before you the following

TABLE V.

Re-agents employed to show the nature of the salts of the blood, from Dr. G. O. Rees. The incinerated ash is to be submitted to the action of distilled water, which separates the soluble from the insoluble parts.

I. Tests for the solution.

Carbonate Potassa.—By throwing down no earthy or metallic precipitate, it proves that all the salts of the solution are alkaline.

Tartaric Acid in excess.—Produces, in a few hours, a crystalline precipitate, proving the existence of potassa as a base.

Blow-pipe.—A portion of the fused salts of the solution exposed to the inner flame, on a platinum wire, the outer flame becomes yellow, proving the existence of soda as a base.

Dilute Acetic acid.—Dropped on the dry salts occasions effervescence, proving the existence of carbonic acid.

Sol. Hydrochlorate Barytes.—Occasions a dense precipitate owing to the alkaline carbonates; dissolve this with a slight excess of hydrochloric acid and a white precipitate of sulphate of barytes will prove the existence of sulphuric acid.

Nitrate of Silver.—Add a slight excess of nitric acid to a portion of the solution, then test; a white precipitate of chloride of barium proves the existence of hydrochloric acid.

Ammonia. — Neutralise the acid liquor poured off from the precipitate, in the last experiment, with ammonia; a yellow phosphate of silver appears, proving the existence of phosphoric acid.

II. Tests for the residue or insoluble parts.

Dilute Nitric Acid.—Effervescence proves the existence of carbonic acid.

Nitrate of Silver.—Add a few drops to the last mentioned solution, then neutralise the excess of nitrate acid with ammonia; a precipitate of yellow phosphate of silver proves the existence of phosphoric acid.

Ferro-prussiate potassa.—Nearly neutralise a portion of the same acid solution with ammonia, then test; after some time a precipitate of prussian blue will prove the existence of iron.

Ammonia.—On neutralising the acid solution with this alkali, the peculiar gelatinous character of the precipitate demonstrates the existence of the earthy phosphates.

Fatty Substances.—The detection of various fatty substances as constituents of human blood is another important result of

modern investigations. These substances were first recognised by Berzelius, Chevreul and Vauquelin, but it was imagined in the early instance that they are formed during the processes adopted for their extraction. Dr. Babington was the first physiologist in this country who published the fact that an oily or fatty matter may at all times be procured from clear healthy serum. He adopted the following method of obtaining it in an isolated state, according to the plan of Dr. Christison, by the employment of ether. "Add to the serum a third portion of ether, and cork the mixture well in a phial; reverse the phial a few times without violent agitation, and repeat this twice or thrice at intervals of a day or two; after a final rest of some hours the ether containing the oil will have risen to the top; draw it off by means of a glass syringe, and on evaporation the oil will be obtained, with a small quantity of albumen; the latter may be separated by a heat which is sufficient to coagulate it." This oily matter of Dr. Babington is no doubt a compound of several of the fatty substances mentioned in the Tables, which will be found to be soluble in ether. These substances are intimately combined with the fibrine albumen and colouring matter. The last-mentioned principles are not chemically changed by the abstraction of the former, and we have seen that the chyle from which the blood is formed contains fatty matters in a free state. It is therefore highly probable that they are conveyed into the blood, in part at least, with the chyle, and that they unite in the former more intimately with the other animal matters. For these reasons Berzelius has of late concurred with Boudet, Gmelin, Müller, Le Canu, Denis, and others, that they are not produced by the analytical processes adopted for their extraction, but exist as ordinary constituents of healthy blood.

According to the most recent investigations, there are three *neutral* and three *acid* fatty matters belonging to the blood. Cerebrine, seroline, and cholesterine, constitute the former, and oleic acid, margaric acid, and a volatile fatty acid, the latter. Some of these substances, although occurring in the animal body, do not contain a particle of azote in their ultimate composition, and several of them are remarkable for the small quantity of oxygen and the large quantity of carbon which they contain.

The *cerebrine* of Denis is the phosphuretted fat of Le Canu, a substance at first thought to be peculiar to the brain, but since found not only in the blood but in many of the tissues and organic fluids. Its properties present some variation, according to the mode in which it is prepared and the situation from which it is procured, but as obtained from the brain it is a viscous pearly substance which soils paper. Besides the usual organic elements, phosphorus and sulphur enter into its composition, and it is the most complex of the proximate principles of blood. It is intimately connected with the other fatty principles. Cerebrine is easily procured by boiling serum, or powdered dry blood, in alcohol, renewing the menstruum several times, cooling the liquid, then filtering and evaporating to dryness. The residue is to be washed in cold alcohol of 835° density.

Seroline was discovered by Boudet in 1833, and is recognised by Denis and Le Canu as a proximate principle. It is a substance which separates in flocculi from the alcohol which has been boiled over the albumen of serum, according to the process last described, as the fluid cools. When viewed in the microscope it has the appearance of filaments with small opaque globules, making it look like beads. This substance was formerly confounded with cerebrine.

Cholesterine has been some time known by chemists as a constituent of biliary calculi. Chevreul, Tiedemann, and Gmelin, detected it in the bile of man, and it is now acknowledged as one of the constituents of blood by Boudet, Gmelin, Müller, Le Canu, Denis, &c. It is a tasteless, inodorous, crystalline substance, somewhat resembling spermaceti, dissolving freely in boiling alcohol, and being deposited on cooling in pearly scales. Cholesterine may be isolated by setting aside the cold alcohol with which the alcoholic extract was washed in the process for procuring cerebrine. The cholesterine deposits spontaneously at the bottom of the vessel with a little cerebrine and margarate of soda, which seem to have rendered it soluble in the cold alcohol, in the same manner as they hold it dissolved in the serum itself.

Cholesterine has been found in the contents of abscesses, and fatty matters in cancer of the intestines, in the membranes of the brain of an epileptic patient, and as pathological deposits in various animal fluids and diseased structures. In future lectures we shall have to enter into the inquiry how far it is rational to look for the causes of various pathological lesions in abnormal states of the blood, as respects these as well as other proximate principles of which this fluid is composed.

The *oleate* and *margarate* of *soda* were discovered in blood by Berzelius and Boudet. The latter chemist, after having separated the neutral fatty matters from the alcoholic extract of serum, evaporated the remaining liquor to dryness, by which he procured a visced matter of an acrid flavour, very soluble in alcohol. This matter contains a small portion of cerebrine, which may be separated by solution in alcohol at 70° Fah., which we have seen has very little action on the latter substance. Thus prepared, it is soft, transparent, acid, of an acrid and soapy flavour, and constitutes a true soap, which

M. Boudet regards as a compound of oleic and margaric acids with soda. On adding a few drops of hydrochloric acid to the aqueous solution, the oils rise to the surface, and these oils, well washed with warm water, still give an acid reaction. By dissolving this oily matter in alcohol and ether, these fluids are rendered acid. It re-combines readily with soda, and forms a compound in every respect resembling the natural soap.

Table VI. points out the differential chemical qualities of the neutral fatty matters of the blood.

TABLE VI.

——	Cerebrine.	Seroline.	Cholesterine.
Appearance.....	Pearly friable solid.	Slightly opalescent.	White brittle solid.
Heat.....	Infusible. At 212° changes to orange colour, and in part volatalises. Friable and pulverisable when desiccated.	Melts at 96°.	Melts at 278°.
Water.....	Absorbs, and the mass swells.	Insoluble. Does not form an emulsion.	Insoluble. No action.
Alcohol	Easily soluble in boiling A. Cold A. has little action.	Difficultly soluble in boiling A. Cold A has little action.	Dissolved freely in boiling A. Crystallises in cooling.
Ether	Insoluble.	Easily dissolved.	
Potassa and Soda...	No soponification.	No soponification.	No soponification.
Coned. Sulphu. Acid.	.....	Reddens.	Reddens.
Acetic Acid.....	.....	No action.	
Hydrochloric Acid..	.....	No action.	
Nitric Acid.....	.....	.....	Turned a blood-red colour, and converted into cholesteric acid.

TABLE VII.

Properties of the Fatty Acids of Blood.

——	Margaric.	Oleic.	Volatile.
Appearance.....	Solid of a pearly lustre.	Colourless oily fluid.	
Test Paper	Acid.	Acid.	Acid.
Heat.....	Fuses at 140°.	Congeals at zero.	Volatilises at 212°.
Specific Gravity	.893.		
Water.....	Insoluble.	Insoluble.	
Ether	Soluble.	Soluble.	Soluble.
Alcohol	Abundantly soluble in hot A.—crystalline in cooling.	Soluble.	Soluble.
Acids.....	Precipitates its salts.		

The *volatile fatty acid* was described as far back as 1794, by Parmentier and Deyeux. They found that both water and alcohol are impregnated with it during the distillation of various tissues and liquids of the animal body. It is this volatile fat which gives the odour to alcohol, which has been digested on serum, during its evaporation. It, in part, produces the peculiar smell of blood when evaporated, but these odours are partly occasioned by the cerebine, which is also volatile; these two substances may be regarded as the *odorous* principles of blood, so far as the latter are known. The most remarkable circumstance with respect to the volatile fatty acid is, that it seems to

present marked differences, according as it is procured from different species and different individuals of the same species of animal. Its analysis is extremely difficult. Like the other fatty acids, it is believed to be combined in the blood with soda, but is very easily disengaged from it. The volatility of the substance in question and of a part of the cerebrine, occasions some waste in the analytical processes with heat to which the blood is submitted, and this must be taken into the account when accuracy is required.

Owing to the difficulty which exists in separating the colouring matter of the serum from the fatty acids, Dr. Babington seems to have inferred that this fluid owes its colour to them, but we shall presently see that there is most probably a peculiar yellow colouring principle to which that is attributable. I shall have to remind you of the volatile fatty matter when the subject of the halitus of the blood is before us, and when treating of those various and peculiar odours which emanate from the body in particular conditions of health and disease. You will see by Table II. that M. Denis finds nearly 7 parts of neutral fatty matter in 1000 of blood, and 2.3 parts of fatty acids. The blood is liable to pathological lesions, as respects these substances; as much as two drachms of fat, of the consistence of butter, has been obtained from a few ounces of serum.

Colouring Matters.—Of these there are two mentioned in Table I. and three in Table II., viz., hematosine, a yellow colouring substance, and a blue colouring substance.

Hematosine.—This term was proposed by Chevreul, and is adopted by Le Canu and other chemists, to designate the red colouring matter of the blood. Le Canu, taking into consideration the imperfection of the processes hitherto adopted by Vauquelin, Berzelius, Brande, and Englehart, for the purpose of extracting the colouring matter, has adopted a new one. The red colouring principle can never be separated from the clot by mere washing; for on examination with the microscope the menstruum is always found to contain the white matter of the corpusles or nuclei, and the colouring matter thus obtained is always found mixed with albumen. The process is as follows:—Mix sulphuric acid, *guttatim*, with human blood deprived of fibrine, until the brown mixture which the acid and blood forms is concreted into a mass. Dilute the magma thus formed with alcohol so as to enable it to be strained, and the liquid pressed through linen of a close texture, by which means the water and alcohol are separated from the brown mass. Detach the residue from the linen, break it up, and treat it with boiling alcohol, renewing the menstruum until it ceases to be coloured, taking care to acidify the portions of fluid last employed. In this manner a reddish brown acid alcoholic solution containing, with other substances, the colouring matter of the blood, and an abundant white residuum, a compound of sulphuric acid and albumen, are obtained. Mix the alcoholic solutions, set them aside to cool, filter, super-saturate with ammonia, filter again to separate the greater part of the sulphate of ammonia formed, and a little more of the albumen, and lastly, distil to dryness. The residue of this distillation is composed of,

1. The red colouring principle.
2. Saline, extractive, and fatty matters.

Treat this successively with water, alcohol, and ether, so as to remove all its parts which are soluble in these vehicles. Dissolve it again in alcohol containing about 5 per cent. of liquid ammonia, filter a third time, distil or evaporate the solutions, wash the new residuum with distilled water, then dry, and it constitutes the red colouring principle in the greatest state of purity in which it has as yet been obtained.

Hematosine thus procured is solid, inodorous, tasteless, and of a dull brown, or reddish black colour, with a metallic lustre. The following are some of its more important chemical characters.

TABLE VIII.

Qualities of Hematosine, from M. Le Canu.

Insoluble at any temperature in water, alcohol, sulphuric ether, acetic ether, oil of turpentine.

Water Alcohol and *Acetic Ether* holding a very small portion of ammonia, potassa, or soda in solution, dissolve it readily, and form a blood-red solution.

Alcohol.—Slightly sharpened with hydrochloric acid, dissolves it readily, and forms a brown colour, becoming red on saturation of the acid. A. at 36°, but better still at 22°, dissolves it by aid of sulphate of soda.

Water.—Precipitates it without change from its acid alcoholic solutions; does not precipitate it from its ammoniacal alcoholic solution, but under the long-continued influence of the alkali and boiling water it suffers a change, and acquires a greenish colour. Sulphate of soda does not render it soluble in W.

Strong Acids.—Separate it from its iron, and change its nature.

Alkalies.—By long contact, and by boiling in water, it changes in colour and properties, since it is then no longer soluble in ammoniacal alcohol.

Chlorine.—Passed through water, holding it suspended, entirely destroys it; white flocculi insoluble in water, but soluble in alcohol subside, the supernatent liquor being impregnated with iron.

Incineration.—Its product is a reddish coloured ash, destitute of alkaline re-action, forming a yellow solution, without residue, in hydrochloric acid, on which ferrocyanate of potassa, hydrosulph. ammonia, and infusion of galls, act as upon a solution of permuriate of iron; and this solution, evaporated to dryness, yields a solid hyacinth red substance, not a white residue as it would do if it contained phosphate of iron. The ashes are, therefore, chiefly peroxide of iron, and the hematosine of human blood always furnished 10 per cent. of this oxide, consisting of 7.1 metal to 2.9 oxygen.

The differences between this substance and albumen are so obvious on comparing Tables III. and VIII., that it is unnecessary to point to them specially. It possesses all the characteristic conditions of an organic proximate principle. With respect to the iron, which forms one of its component parts, since it is always found in combination with it, great differences of opinion exist among chemists. Some think it exists in this principle in the state of an oxide. M. Le Canu believes it is in the metallic state, constituting one of its elements, in the same way as phosphorus, oxygen, hydrogen, and carbon are elements of the fatty matter of the brain, so that the iron cannot be separated from the hematosine without its utter destruction. M. Le Canu examined the hematosine of several animals, and generally found that it presented the same chemical and physical characters, but sometimes it appeared that its chemical composition was not constant. In particular, the proportion of metallic residue, after incineration, varied. Thus, the hematosine of the ox, in one instance, yielded 12.85, and in another 12.67 per cent., and that of chicken's blood gave 8.34 per cent. It is put as a question whether the proportion of iron is always the same in the hematosine of the blood in individuals of the *same* species; and, on the contrary, varies in that of *different* species and more especially in different classes of animals? This is, perhaps, the only principle of which it may be affirmed it is peculiar to blood. It may, I believe, be said that it is never found in a state of health in any other humour; for, although it is met with in the lymph and menstrual fluid, it is most probably there as an admixture of blood corpuscle, nor is the muscular tissue coloured by a combination of hematosine and fibrine. It is to be regretted that M. Le Canu, who has furnished us without doubt with the best account of the red colouring matter of blood, has, at the same time, omitted to give its ultimate analysis.

Yellow Colouring Matter.—M. Denis calls this "yellow biliary matter." The serum of blood is well known to have a yellow tint, verging on green, which was anciently attributed to bile. That it is owing to a special colouring principle, and not to the natural tint of albumen itself, seems probable, from this fluid being sometimes colourless, and yet containing its ordinary proportion of albumen. To procure this colouring principle as nearly as possible in a separate form, we are recommended to precipitate a considerable quantity of serum with cold alcohol, at 840°, continuing to renew the menstruum as long as it comes off turbid, by which we obtain a considerable quantity of liquid, of a well-marked greenish yellow colour. Thus, a small quantity of serum has the property of colouring a great quantity of alcohol. As this tincture recovers the original bulk of the serum by evaporation, it presents exactly the same tint as the latter did; but, on continuing the evaporation, it loses its greenish hue, and becomes of a golden yellow; it gets thick and turbid, and forms into deep orange-coloured opaque masses, and when the evaporation is complete, the whole of it is nearly brown. This residue has a saline taste, with something biting and disagreeable, and its odour is aromatic and soapy. Ether dissolves it, and separates the inorganic salts. Water dissolves it also, with the exception of a little fatty matter, which renders the solution turbid. Heat turns it of a vivid red colour. By the action of alcohol, some of the fatty matters may be separated; but thus disengaged from the greater part of these substances, it is still combined with organic salts, and oleate and margarate of soda, and also with traces of a peculiar blue colouring principle. It has hitherto been found impossible to separate these colouring matters from the oleates and margarates; hence the colour of serum has been referred by some chemists to the oil which it contains.

The blood of jaundiced persons has furnished on analysis a substance identical with this yellow colouring principle, but in a much larger proportion. Now, it is very well established that the yellow matter of *bile* colours the blood of icteric patients, and it therefore seems to follow that the yellow colour of serum is owing to the same animal principle as the yellow colouring matter of the bile. The result of the researches of Chevreul, Lassaigne, Braconnot, Le Canu, and Denis, shows that these substances are identical.

Blue Colouring Principle.—When examining the yellow colouring principle of icteric blood, Chevreul, Lassaigne, and Le Canu, observed a greenish or blue colour, which Sanson afterwards found as a distinct principle in the blood of oxen. Denis has also discovered traces of it in healthy human serum, and regards it as a constituent. He remarks, that it cannot be a modification of the yellow colouring matter, because, if the serum was only coloured with the latter

substance, it must always present a pure yellow tint, instead of being manifestly of a greenish hue. This seems to result from the simultaneous existence of a yellow and a blue substance. In a state of purity, the blue matter is insoluble in cold alcohol, ether, and water. It is very slightly soluble in boiling alcohol, and precipitates on cooling. The concentrated acids have no particular action on it, except that highly concentrated sulphuric acid decomposes it. Ammonia also does not act upon it, but its colour is easily destroyed by chlorine. Mr. Sanson thinks this principle exists in blood in so minute a proportion as to influence its colour very little, but that in certain cases it may be formed in great quantity, and deposit itself in the tissues with the yellow substance, giving rise to the different shades of colour which the skin assumes; but this principle is scarcely at present sufficiently known, its existence being inferred chiefly from the greenish colour of the serum. The colouring matters of the blood altogether constitute about 4 parts in 1,000.

Aqueous and Alcoholic Extractives.—I have now to say a few words respecting a group of substances which come under these denominations, and are included in Table I., but omitted in Table II. You will find these substances mentioned as *indeterminate* in most of our works on chemistry and physiology. Denis regards them as products resulting from various modifications of albumen, and not educts. *Aqueous extract.*—The action of boiling water on fibrine, on the clot, and even on coagulated serum, separates a substance, which dried, and then washed with alcohol, constitutes what has been called *cruorine*. It is the *muco-extractive matter* of Marcet, and the aqueous extract of Berzelius. Le Canu thinks it is a compound of albumen and soda. Boudet regards it as a proximate principle. Berzelius as an alteration of the albuminous parts of the blood, occasioned by boiling water. Muscular flesh furnished Berzelius and Chevreul substances analogous to this. Denis's experiments tend to confirm Le Canu's conjecture, that this aqueous extract is only a compound of albumen and soda, and he has therefore, as you see by the Table, erased it from the account of the proximate principles of blood.

Alcoholic Extract.—This is the *animal extractive* of Thouvenet, the *osmazome* of Thenard and other chemists, which denominations have been given indefinitely to many substances extracted from animals and vegetables. Le Canu states, that the latter term is evidently given to a complex product of animal analysis. Denis and others now think it necessary to renounce this name altogether, unless it be understood as designating all the extractive compounds of nitrogen which are soluble in alcohol. Many of the continental chemists have concluded that these alcoholic extracts are complex products, and that they ought not to hold a place in a list of the component parts of human blood. I have already mentioned the doubtful existence of lactic acid and its salts in blood; these substances, you know, are always found in combination with osmazome, and you will at present find the whole of this group mentioned in chemical works as component parts of the animal fluids and tissues.

Having described the various processes by which the proximate principles of the blood may be obtained separately, I have only to explain, in a few sentences, how we proceed when a complete analysis is to be made. This should be determined before venesection; the product of an ordinary bleeding, viz., sixteen ounces, is, upon the whole, the most convenient quantity to operate upon, and it should be received into at least four different vessels.

1. The specific and absolute weights of one portion are to be taken immediately, and noted down. The proportion of fibrin may, also, be determined at once, which, for the sake of illustration, we will suppose to be 2 parts in a 1000 of blood. The different vessels are then to be set aside for 24 hours, to allow of the spontaneous separation of their contents.

2. Three hundred grains of serum, taken from one of the vessels, is to be evaporated in a salt-water bath, until it ceases to loose weight. The loss of weight indicates the proportion of water, and the residuum that of solid matter in the *serum*. We will suppose the latter to be 25 grains. A given portion of blood is to be evaporated in a similar manner, which gives the proportion of water and solid matter in the *blood*. We will imagine 1000 grains of blood to yield 230 grains of solid residue.

3. The proportion of dry serum, liquid serum, water, and corpuscles, is now arrived at by calculation, since chemists regard the serum as a solution of all the solid matters of the blood in water, except the fibrin and the red corpuscles. The proportion of this solid matter to water in the whole blood is the same as in the portion of serum already experimented upon. Accordingly, as 275 water of serum : 25 solid matter : 770 water of blood : 70 solid matter belonging to its serum of a thousand grains of blood. Subtract 70 from 230, the whole solid matter of 1000 grains of blood, and 160 remains for the clot, apart from its serum. Subtract 2 again from this, being the weight of the fibrine, and we have the following results:

Blood corpuscles	158
Fibrine	2
Solid matter of serum	70
Water	770
	1000

4. None of the solids or fluids are to be wasted, but with a disposable portion of the blood we are to proceed to determine the proportion of hematosine and albumen of the corpuscles; with a disposable portion of serum, we arrive at the proportion of its albumen and fatty matters; another portion of serum, or blood, is to be incinerated to obtain the salts, and so forth, according to the skill and taste of the operator, and generally by the processes which have been detailed in this and the former lecture; these minor experiments, and the specific and absolute weight, serving to amplify and correct the analytical calculation described in the last paragraph.

This is an outline of the mode in which a complete analysis of the blood is conducted. Sometimes we must be content with a much smaller quantity to operate upon than that mentioned; say three or four ounces in a tea-cup. In this case we proceed somewhat differently, and we shall be able to determine, for practical purposes, the proportions of the more important proximate principles only. For more perfect information on this subject, I must refer to the works of Dr. Christison, Dr. Rees, and M. Denis. Although one of the most complex processes in animal chemistry, the whole of the apparatus, and the necessary tests, may be held, as you see, by a small library table. Nothing can more clearly demonstrate the practicability of every physician and surgeon becoming an analytical chemist.

Many other substances have been described as proximate and ultimate principles of human blood, amounting in the whole to 45. At one time *gelatin* was regarded as such, but Bostock, Marcet, Berzelius, and Brande, have proved the contrary, and it has of late been rendered highly probable that animal jelly or gelatin does not pre-exist in skin, cartilage, &c., but is the product of the re-action of boiling water on these structures. It is also most important to remark, that *urea* is regarded by some chemists as a constant proximate principle of blood, although, under ordinary circumstances, it cannot be detected. If the action of the kidneys is in any way interfered with, this principle is found, and its amount goes on gradually increasing. Prevost and Dumos, and Tiedemann and Gmelin, have shown that after the extirpation of the kidneys the blood always contains urea, and this discovery has been confirmed by other chemists, from which Dr. Babington draws a legitimate inference, that if we have hitherto been unable to detect in the blood uric acid, caseum, and other principles contained in the animal fluids, we are not to conclude that they do not exist there, "analogy would lead us to infer that they are actually present, and that if we were to interrupt the different glands in the performance of their functions, they would be discovered in appreciable quantity." This important observation will admit of some qualification in accordance with a few remarks which I shall presently make respecting the acknowledged proximate principles of the blood.

I must now call your attention to the universally admitted fact, that the blood is the nutritive fluid, and that it supplies the living tissues with the materials of which they are composed, and with which, under the living power that this fluid and these tissues reciprocally enjoy, their daily losses are repaired. If any proof of this were wanting, it might be urged that when the quantity of blood received by an organ is permanently diminished in any considerable degree, the organ wastes, and, on the contrary, the greater the quantity of blood a part receives, the greater the tendency of that part to increase in size. This is not only the case as respects the growth and development of the body, but also as respects its hourly nutrition. On tying the main artery of a limb, Nature is so sensible of this dependence for support, that she sets about, *instanter*, to supply the defect. So, also, the secretions which proceed from tissues and glands, are arrested when the supply of blood is cut off. It was formerly believed, from *a priore* reasoning alone, that the substances of which the secretions and tissues are composed, pre-exist in the blood; but during the long period of neglect of the fluids, this idea was abandoned. It has, however, turned out, as remarked by Le Canu, that the more we study the chemical composition of the blood, the more we are led back to the opinions of the ancients, that it contains ready formed the proximate principles of animals; but as regards this it will be well to recall our attention to the main facts.

Water, which enters so largely into the composition of the blood, forms also the greater chemical component part of all the secretions and tissues, not excepting the bones. *Albumen*, which after water is by far the most abundant proximate principle of blood, is found in a proportionately large quantity, both in the solids and fluids. It occurs in cellular membrane, skin, brain, muscle, glands, vessels, cartilages, mucous membrane, crystalline lens, vitreous humour; the fluid of serous membrane, synovia, pancreatic juice, bile, &c. *Fibrine* is the basis of muscle; *cerebrine* is found in the brain and nerves, and in the parenchyma of the liver; *cholesterine* in the bile; *margaric* and *oleic acids* in the fat and bile; *volatile acid* in the halitus and sweat; *chloride of sodium* is found in sweat, urine, fluid of cellular membrane, gastric and pancreatic juice, saliva, and bile; also in bone, cartilage, hair, and other humours and solids of the body; *phosphate of lime* is regarded as the bases of bone, it occurs also in cartilage, the enamel and osseous matter of teeth, hair, caseum of

milk, bile, urine, saliva, &c.; the other salts are met with in minute portions in different solids and fluids. The *yellow* and *blue colouring principles* are normal constituents of the bile, and *iron* has been met with in the caseum of milk, hair, pigmentum nigrum, and in minute portions in some of the secretions. Even the more doubtful principles, as osmazome, lactic acid, and other extractives, are eliminated by similar processes, both from the blood and from the solids and fluids which are produced from it. The following calculation of the composition of the whole blood of an individual, taken at an average of 30 pounds troy weight, is rendered both curious and instructive by the above facts. I have taken M. Denis's analysis as the most simple:—

TABLE IX.

——	Pounds.	Ounces.	Drachms	Scruples.	Grains.
Water	24	9	1	0	8.6
Albumen of Serum	2	2	3	0	7.7
Fibrine	.....	.....	6	1	12.6
Soda	.....	.....	2	1	18.4
Sulphate Potassa	.....	.....	2	0	6.8
—— Soda	.....	.....	2	0	6.8
Phosphate Soda	.....	.....	1	0	3.4
Chloride Sodium	.....	1	2	1	13.8
Phosphate Lime	.....	.....	.....	2	7.5
Magnesia. } Lime .... }	.....	.....	.....	1	11.7
Fatty Acids	.....	.....	6	1	16.2
Seroline	.....	.....	3	0	7.3
Cerebrine .. } Cholesterine }	.....	1	7	1	16.5
Yellow Colouring } Blue ..... }	.....	.....	7	2	1.
Hematosine	.....	.....	4	0	17.6
Oxide of Iron	.....	.....	.....	1	8.5
Albumen of Corpuscles	2	4	3	1	15.
	30	0	0	0	0

TABLE X.

Ultimate Elements in 100 *Parts of each of the Proximate Principles of Blood.*

——	Oxyg.	Hydrg.	Carb.	Azote.	Chlorine.	Phosp.	Sulph.	Potm.	Sodium.	Calcin.	Magne.	Iron.
Water	88.9	11.1	0	0	0	0	0	0	0	0	0	0
Albumen	26.92	8.77	49.75	15.55	0	0	0	0	0	0	0	0
Fibrin	24.06	8.22	50.44	17.26	0	0	0	9	0	0	0	0
Soda	25.4	.....	.....	.....	.....	.....	.....	.....	74.6	0	0	0
Sulph. Potass.	36.3	.....	.....	.....	.....	.....	18.2	45.5	0	0	0	0
—— Soda	44.5	.....	.....	.....	.....	.....	22.2	.....	33.3	0	0	0
Phosp. Soda	41.	.....	.....	.....	.....	23.5	.....	.....	35.5	0	0	0
Chlor. Sodium	....	.....	.....	.....	60.	.....	.....	.....	40.	0	0	0
Phos. Lime	44.1	.....	.....	.....	.....	25.	.....	.....	.....	30.9	0	0
Magnesia	40.	.....	.....	.....	.....	.....	.....	.....	.....	.....	60.	0
Oleic Acid	7.69	11.35	80.98	0	0	0	0	0	0	0	0	0
Marg.	8.93	12.01	79.05	0	0	0	0	0	0	0	0	0
Cholesterine	3.02	11.8	85.09	0	0	0	0	0	0	0	0	0
Cerebrine	0	0	0	0	0	0	0	0	0	0	0	0
Oxide of Iron	29.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71

There are many substances which come under the denomination of animal proximate principles, which have not yet been demonstrated as existing in the blood. The sulpho-cyanic salts of saliva, picromel of bile, manganese, and saliva of hair, fluate of lime in teeth, butyric acid, for instance. But with respect to these we must bear in mind the important observations already quoted from Dr. Babington, as to urea. Still, in the present state of our knowledge, the opinion cannot be adopted, that all the component parts of the organs exist in the blood in a perfect state, for even the albumen, fibrine, and fat, present some modifications as obtained from different sources. I believe we may conclude with Müller, "that the materials of the tissues exist in part ready formed in the blood, and that under the vital influence they are attracted from this fluid by the molecules of tissues, and organs analogous to themselves, sometimes in their original state, and sometimes their ultimate elements are newly combined, so as to form new proximate principles;" the vital current itself experiencing a reciprocal action and a reciprocal modification.

I must reiterate the caution I formerly gave, that the sum of our knowledge respecting the chemical composition of the human body is, that immediately on the cessation of *vitality*, the blood and the solids resolve themselves into these proximate principles. The distinguishing character of fibrine is spontaneous coagulation; fibrine is the basis of muscle, and yet muscle does not coagulate during life. It is obviously unphilosophical to regard muscle, membrane, brain, &c., as fibrine, albumen, cerebrine; but we are no more on that account to conclude that our knowledge of these post mortem chemical characters of the animal fluids and solids, so little attended to, is valueless, than on a similar account to reject the post mortem physical characters of the tissues and organs which have been studied so advantageously of late years, under the head of pathological anatomy.

We have been unable at present to apply the doctrine of chemical proportions to the changes which take place among the elements of matter in living systems, but we are not on that account prepared to say that its laws are subverted. Whether it be so or not, it is well to bear in mind the infinite variety of combinations which the elements of blood are capable of. Table X., which is necessarily imperfect, will serve to put this matter in a somewhat novel and strong point of view.

COURSE OF LECTURES
ON THE
DISEASES OF THE EYE,
Delivered in 1839-40,
AT THE
ROYAL SCHOOL OF ANATOMY AND MEDICINE,
MANCHESTER,
By JOHN WALKER, Esq., Surgeon.

(*Delivered November* 21, 1839.)

The Ophthalmic branch of Surgery is universally admitted to be of the very highest interest and the deepest importance, involving, as it often does, the question,—Whether sight—the most valuable of the senses—is to be maintained or destroyed.

In the term ophthalmic surgery we include, not merely the operative and manual proceedings, but likewise the employment of such remedies, both local and general, as may be necessary for preserving or restoring the functions of the visual organs, when in a state of disease.

The diseased conditions that are observable in the eye are both numerous and varied. We are not, however, to suppose, because a great number of names are employed to designate them, that there is a corresponding variation either in their nature or in the treatment they require.

The eye is but a diminutive organ, yet such is the peculiarity of its functions, that it not only has a supply of most of the ordinary materials which enter into the construction of other parts, but likewise possesses several textures which are not met with elsewhere, such as the cornea, the crystalline lens, the choroid membrane, and others. So that, in considering the diseases of this organ, we must expect to find that, although there is a general resemblance between them and those met with in other parts of the system, there are also some peculiarities.

We shall find, as we proceed, that inflammation is more or less connected with the vast majority of ophthalmic affections. But inflammation in one texture exhibits a series of phenomena somewhat different from that it exhibits in another, and it will be found necessary to modify the treatment accordingly. Hence the necessity of carefully discriminating the inflammatory conditions of each individual texture of the eye.

But, besides inflammation, the ophthalmic surgeon finds other morbid states occasionally presenting themselves to his notice, as, for example, that vitiated condition of the crystalline body, named cataract, paralysis, fungoid diseases, &c. The visual organ is likewise very frequently the subject of injuries and malformations, which will therefore claim a portion of our attention.

I shall not occupy your time by abstruse disquisitions on the nature of those actions which give rise to the phenomena of ocular disease. My efforts will rather be confined to the more practical purpose of describing, as accurately as possible, the phenomena themselves, their causes, and the treatment they require.

I propose to give a detailed account of what is most important on each of these topics, in relation to the various diseases of each individual structure of the eye. I shall commence with the diseases of the conjunctiva, cornea, and sclerotica, and then proceed to those of the deeper-seated textures, viz., the iris, the choroid, and the retina.

Next will follow the consideration of the affections of the aqueous, crystalline, and vitreous humours, and of their capsules.

After having treated of the diseased conditions of the individual textures, I shall take up the consideration of those which simultaneously involve the whole, as well as those few anomalous affections which, from the uncertainty attaching to them as to what parts they really affect, could not properly be classed with the preceding. Lastly, the morbid states of the appendages will claim a share of our attention.

This arrangement appears to offer many advantages, as under it no affection of any importance can well escape notice; although, on the other hand, it necessarily occasions a certain amount of repetition, particularly as regards the principles of treatment.

In what I shall have to say, I do not intend to go into lengthy details, so as to weary the attention of the student, if not to bewilder him, but rather to present to his view the more striking features and facts of ophthalmic practice, such as will be serviceable in enabling him to come to a practical conclusion as to the nature and treatment of each individual case that may come before him.

In treating of the various forms of disease, the symptoms are always described, in books and lectures, as occurring with more regularity and order than are observable when we investigate the diseases themselves. Hence, the discrimination of the particular varieties of ophthalmic disease is not always the simple business it is apt to be regarded from the perusal of systematic treatises upon this subject. A difficulty arises from authors usually describing diseases in their elementary forms, whereas practitioners often see them in their more complicated states. Thus, inflammation seldom affects one particular structure only: on the contrary, we often find that it affects several simultaneously. When this latter is the case, there is usually, however, a considerable degree of regularity noticeable in the order in which the parts become consecutively affected; as, for example, when the conjunctiva is inflamed, the cornea is also liable to become involved in it; when the sclerotica is inflamed, then the iris is very likely to fall into the same condition; and similarly, so far as we can judge, with respect to the deeper-seated textures. In some instances, indeed, we find both the first and second orders of textures simultaneously inflamed; and, now and then, all are implicated in the same mischief, without our being able to say which was the texture primarily affected.

In considering the various compound affections, it is customary to designate each from the more important texture affected, or from that in which the symptoms are the most developed, as if it were alone the seat of the disease. Thus, in the case of inflammation affecting the iris, the sclerotica is almost certain, in some measure, to partake of the diseased action, but the iris being the more important texture, the disease is termed simply iritis; so, with the cornea, if the conjunctiva be less affected than the cornea itself, we name the disease corneitis.

Having offered these preliminary remarks, I proceed to the consideration of

Diseases of the Conjunctiva.

The conjunctiva, being the outermost of the tunics of the eye, is, perhaps, on that account, the most frequently affected with disease. Situated in immediate contact with the atmosphere, it is liable to be influenced by changes of its temperature or of its humidity, as well as by irritating vapours and other foreign matters with which it is occasionally loaded. From the irritation thus produced, inflammation is frequently excited. This form of inflammation is named ophthalmia, and when confined to the conjunctiva, and the result of the slighter causes just mentioned, and existing only in a limited degree, it is more particularly termed either conjunctivitis or simple ophthalmia.

Before, however, entering into a formal account of the symptoms, causes, and treatment of conjunctivitis, it may be useful if I make a few observations on the

Mode of Examining an Eye affected with this form of Disease,

since they will serve as an introduction to what I have to say on the method to be pursued in examining the affections of the eye generally.

It must be obvious that the greatest delicacy must be exercised in conducting the process of examination. This is necessary, not only on account of the feelings of the patient, but also the reputation of the surgeon; for we know that patients often form a favourable or an unfavourable opinion of the practitioner, according as he manipulates the organ in a gentle or rough manner. I have seen surgeons, in attempting to examine patients with an irritable condition of the eyes, put them into such a state of excite-

ment, from the suffering occasioned by their awkwardness, as was really lamentable to witness. Such persons, we may be sure, could scarcely ever obtain reputation as ophthalmic surgeons.

The best position for a patient under examination is seated in a chair with a high and gently-reclining back, against the top of which his head should repose, the chair being placed either just before or on one side of the window. A room facing the north is to be preferred, as the surgeon is then less likely to be annoyed by the reflection of the sun's rays.

In some cases, the patient will not be able to expose the eyes at all to the light; in others he will find no difficulty. It will be proper never to remain satisfied with the examination of merely that part of the eye which is usually exposed to view: we must, therefore, on no account, omit to scrutinize minutely every part of the surface of the organ. Of course we always take a superficial view in the first instance, but, as just intimated, this must not satisfy us. In our special examination, we should first look to the state of the conjunctiva of the cornea; any deviations from the natural state should be accurately noted. To obtain a view of the portion of conjunctiva covering the inferior half of the eyeball and the inner surface of the inferior eyelid, is, generally, a matter of no difficulty, when there is no intolerance of light or any morbid sensibility, as, for this purpose, it is merely necessary to place the tip of the fore-finger, keeping the sharp edge of the nail away, against the central portion of the outside of the lower lid, just below the ciliary margin, and then draw it gently downwards. Eversion of the lid is produced by this operation.

To obtain a view of the conjunctiva of the superior half of the globe, and of that of the upper eyelid is not, without some nicety of manipulation, so easy a matter, for the upper eyelid is very much more irritable than the lower, and it also possesses a much greater share of mobility. We may, however, usually accomplish its elevation to such an extent as to admit of the upper half of the front of the eyeball being brought into view, by placing the thumb against the outer surface of the lid, in the same manner as the finger has been directed to be applied to the lower lid, and raising it gently towards the eyebrow, at the same time requesting the patient to turn the eye downwards.

But, though in this manner we may obtain a satisfactory view of the upper half of the front of the globe, we shall not obtain any view of the conjunctival covering of the superior eyelid. Eversion of this lid must be effected before its inner surface can be brought under examination, which cannot be done by simply elevating it, but may be by the following procedure:—The cilia occupying the central portion of the margin of the lid, are to be laid hold of between the thumb and fore-finger of the left hand, the back of the finger, at the same time, being placed upon the skin of the lid; then, the cilia and ciliary margin being raised by the thumb, the substance of the lid is to be pushed downwards by the finger, and thus complete eversion of its conjunctival surface will often be readily produced. Sometimes, however, on account of the strong action of the orbicularis muscle, it will be more difficult to produce eversion, and it may be necessary, with the right hand, to employ a probe or some similar instrument to depress the upper and outer portion of the lid, while the thumb and fore-finger of the left hand are used to raise the cilia and ciliary margin, as before pointed out. In this way we may always succeed in obtaining a proper view of the conjunctival surface of the upper lid.

In examining the eyes of children, however, it rarely happens that we can succeed in inducing them voluntarily to undergo the simple processes pointed out; if there be intolerance of light and much irritability, it is impossible, and we are compelled to have recourse to the forcible separation and eversion of the palpebræ. The only difference required in the mode of manipulating in this case, is to place the child's head upon or between the knees of the surgeon, while the rest of his body is supported by some other person, who is seated opposite, and who secures the hands, which are otherwise apt to be very much in the way. Generally there is but little difficulty, when the child is properly secured, in obtaining a satisfactory view of the whole surface of the conjunctiva. The only exception to this statement is, where the palpebræ are, as is sometimes the case, enormously swollen, and the fissure between them is very small, as in cases of purulent ophthalmia, in which complaint, indeed, it is sometimes absolutely impossible to obtain an examination of anything more than the conjunctival surface of the palpebræ, the tendency to eversion of the lids rendering this an easy task, however difficult it may be to expose the conjunctiva of the globe.

In order that it may be known

When the Conjunctival Membrane is in a Diseased Condition,

it is of course requisite that we should have made ourselves previously familiar with its appearance in health. In the healthy state, the conjunctiva of the globe is a very delicate, pellucid, almost colourless, and scarcely perceptible membrane. The shining white of the sclerotica alone is presented to the view of the observer, except at the inner and outer canthus, and at the superior and inferior parts of the globe, where a few straggling vessels are discernable in its substance.

The conjunctiva of the inferior eyelid is more dense, and, being possseed of a higher degree of vascularity, is of a bright red tinge, and is scarcely transparent, except where it is less injected, as towards the inner canthus, and at the point where it is reflected upon the sclerotica.

The conjunctiva of the superior eyelid is much less vascular than that of the inferior. It partakes altogether more of the character of the conjunctiva of the globe; being, like it, very thin, transparent, having very few vessels, and consequently being almost colourless.

The deviations from the healthy condition of the conjunctiva are both numerous and varied, but are chiefly dependent upon derangement of its vascular action. That they are many of them of great importance, too, we shall hereafter see. We will now proceed to the consideration of these different forms of conjunctival inflammation, and commence with the simplest.

Conjunctivitis, or Simple Ophthalmia.

Inflammation, when confined to the conjunctival membrane, and arising from the slighter causes of irritation, and when free from the constitutional and other peculiarities we shall hereafter have to consider, is usually a very simple affection, particularly if the conjunctiva of the cornea do not participate in it. Hence, it seldom requires very active treatment, and is never productive of much mischief, although it may be a source of great distress and inconvenience. But, if it should not be checked, there is no telling how soon the disease may extend to the cornea or some other important texture, and thus vision become seriously impaired.

The leading symptoms of this affection are increased vascularity, lacrymation, intolerance of light, and a painful or uneasy sensation upon the surface of the eye.

Increased vascularity is a constant and an obvious symptom. In the healthy state, as before observed, the conjunctiva scarcely exhibits any appearance of vessels, not more than three or four being usually apparent upon its ocular surface; but, if it become inflamed, then the vessels are infinitely multiplied and strikingly distinct. This condition exists in more or less intensity, from the slight redness, popularly termed bloodshot, up to that extremely injected and distended state of the vessels called chemosis. In chemosis, the conjunctiva is much thickened from the great increase in the number and size of its vessels, as well as from serous effusion into its texture. Chemosis, however, is seldom observed in simple ophthalmia. Sometimes there is a partial appearance of the chemotic kind, arising from an effusion of a dark red jelly-like fluid, which is termed ecchymosis.

The conjunctival vessels are known by their being somewhat tortuous in their direction, superficial, generally moveable with the loose conjunctiva, and of a bright red colour. By these marks we satisfy ourselves that the vessels are those of the conjunctiva in contradistinction to those which traverse the sclerotica; the latter being much less tortuous, indeed nearly straight as they approach the circumference of the cornea, seated under the conjunctiva, and therefore not moveable with it, and having a pink colour. These points of distinction should be permanently fixed in the mind, since a proper discrimination of them will enable us to satisfy ourselves as to the seat of the inflammation, that is, whether it be simply the conjunctival membrane or the sclerotica, a discrimination upon which the kind of treatment to be adopted materially depends.

Lacrymation, though an usual, is not an invariable attendant upon conjunctival inflammation. The irritation on the external surface is communicated by the sentient nerves to the lacrymal gland, and hence the increased flow of tears, a discharge which is presumed to be serviceable in relieving the uneasiness attendant upon this affection, and is no doubt of use in washing away minute substances that are apt to lodge upon the conjunctiva, and produce the irritation in question. In some instances, the lacrymal fluid is not only greater in quantity, but has its temperature, or other qualities, so far modified, that it irritates the outer surface of the eyelids, and the skin of the cheek, over which it frequently runs, owing to the puncta not being able to carry it away wholly as it is secreted.

Intolerance of light attends the great majority of cases of conjunctival inflammation, though it cannot be said that there is always an exact proportion between the intensity of this phenomenon and that of the inflammation, for, often in acute conjunctivitis, there is but little intolerance of light; and, on the other hand, there is sometimes great intolerance when the conjunctivitis is but trivial.

The painful or uneasy sensation experienced from conjuntival inflammation may be compared to that produced by the presence of a particle of dirt, accidentally introduced between the conjunctival surfaces. When free from disease, these surfaces are accurately adjusted, and glide smoothly and freely one over the other; but conjunctival inflammation existing, the vessels are enlarged, and distended with red blood, and project from them, and by the friction attendant upon the winking motions of the lids, cause irritation, and the sensation of the presence of a foreign body.

The symptoms attendant upon ophthalmia are not always presented exclusively by the eye itself. In the slighter examples, such, indeed, is often the case; but in those more aggravated, the irritation is communicated,

doubtless, through the agency of the nervous system, to the contiguous and surrounding structures, hence the head-ache and circum-orbital pain sometimes complained of; and sometimes the whole system sympathises, as is shown by the presence of pyrexia, and other symptoms of disorder.

The causes which induce simple conjunctival inflammation are not always apparent. Sometimes we are able to trace it to exposure to wet, or a draught of cold air, great heat, strong light, mechanical irritation from foreign substances, irritating vapours, and the like. In some persons, too, there is such a constitutional predisposition present, that exposure to cold, intoxication, or disorder of the digestive organs, is almost certain to excite an attack of the disease.

The Treatment of Conjunctival Inflammation must necessarily vary according to the greater or less severity and duration of the attack, and the constitution, age, and other circumstances of the patient.

In ordinary cases, the disease will yield to rather mild treatment. Abstinence from strong food or stimulating fluids, with the occasional administration of a brisk purgative, such as calomel and colocynth, or the compound senna mixture, will form the chief internal treatment. Local applications are sometimes serviceable, but it is not always easy to say whether these should be warm or cold; the decision may usually be left to the feelings of the patient. If the patient be of a robust constitution, and the disease of a rather acute character, attended with a sense of heat externally, it is likely that cold applications will be preferred. On the contrary, if the patient be of a delicate and irritable constitution, warm applications will probably afford greater relief. Cold applications are to be used simply upon the external surface of the palpebræ. A thin fold of muslin, saturated with cold water, spirit and water, or a solution of superacetate of lead, in distilled vinegar sufficiently diluted, will be suitable. Warm applications are to be used as fomentations also to the outer surface of the palpebræ: of these, warm water, common tea, and poppy decoction, are probably the best.

It occasionally happens, however, that the inflammatory action is so acute, especially in persons of a robust and vigorous constitution, that it may be necessary to resort to blood-letting. The mode in which blood should be abstracted will depend upon the intensity of the inflammatory action, and the probability or not of its extension to the more important parts of the eye.

It may be laid down as a general rule, that venesection is seldom required, except the system be sympathetically affected, and the pulse be much excited, the tongue furred, and there be throbbing pain in the head. On the contrary, when no such general excitement exists, even though the inflammation be of a very active character, and threaten to implicate the more important textures, cupping on the temple or at the nape of the neck, followed by the application of leeches to the palpebræ, will prove the most judicious practice.

By way of caution, it cannot be too forcibly impressed on the mind, that, although conjunctivitis is ordinarily a trifling affection, yet sometimes it is but the forerunner of another of a much more serious description: the surgeon should, therefore, always be on the alert to detect any extension of the disease to the deeper-seated and more important parts of the organ, and adapt the activity of his treatment to the urgency of the case. This may be illustrated by the following example:—

Mr. W., a stout, plethoric man, about 40 years of age, consulted me for an affection of his right eye, which had existed several days. On examination, the conjunctiva was observed to be excessively vascular, the vessels having a bright red tinge, and being quite superficial. The eye was watery, and intolerant of light, and he complained of a pricking sensation in it, and of a slight head-ache; vision but little impaired, and there was no other obvious mark of disease, the cornea not being at all affected, the pupil not more contracted than that of the other eye, and the iris possessing its usual brilliancy. The sclerotica could not be seen, in consequence of the highly injected condition of the vessels of the conjunctiva. From the intensity of the conjunctival inflammation, I was apprehensive that the cornea, or some of the deeper-seated textures, would, sooner or later, become implicated. Acting under this impression, I directed him to be cupped on the temple to twelve ounces, to use a poppy fomentation to the palpebræ, to be freely purged with calomel and the compound senna mixture, and to be restricted to a low diet. Two days afterwards, the conjunctival inflammation was somewhat abated, and the cornea remained unaffected; but the iris presented a slight dimness on its surface, and a streak of lymph stretched across the pupil, which was now more contracted than before, but perfectly circular. Vision was much obscured. I then ordered a dozen leeches to be applied upon the eyelids, the extract of belladonna to be smeared upon the eyebrow and lids, every night at bed time, and four grains of calomel to be taken every four hours. At the end of the next two days, there was no perceptible change, except that the quantity of lymph in the pupil had rather increased. The belladonna had not caused any dilatation of the pupil, and vision was nearly gone. The cupping was ordered to be repeated, the belladonna to be kept constantly applied, and the calomel to be steadily continued. At his next visit,

three days afterwards, the mouth had become decidedly affected, and a marked improvement in all the symptoms was observable; the lymph appeared to be absorbing, the pupil somewhat dilated, and vision partially restored. At first, it has been remarked, the vessels of the sclerotica could not be seen, since they were completely concealed by the extreme vascularity of the conjunctiva. So soon, however, as the latter became much diminished, the former were distinctly visible. In the course of the next few days, the pupil became considerably dilated, the lymph completely absorbed, the vascularity both of the conjunctiva and sclerotica nearly disappeared, and vision was rendered as perfect as before.

In addition to what has already been said on the subject of blood-letting, I may observe, that in the instance of acute conjunctivitis, brought on by the infliction of any injury to the eye of an individual in the possession of full health, or of a plethoric tendency, the practice of either general or local blood-letting, according to the intensity of the affection, will be decidedly proper, and generally affords considerable and speedy relief. The following is a case exemplifying this remark:—

Mrs. B., a stout, portly person, about 50 years of age, usually enjoying excellent health, whilst walking out, got a particle of dirt blown upon the eye, which occasioned her excessive pain for some time. The pain, however, somewhat abated after the expulsion of the foreign body. The next day her sufferings returned with increased force, and she concluded that there must still be something remaining to keep up the irritation. She then applied to me. On examination, there was nothing discoverable but the existence of rather acute conjunctival inflammation. Half a dozen leeches were ordered to be applied to the palpebræ, these afterwards to be frequently fomented with warm water, and some mild purgative medicine was also prescribed. On the next day, the symptoms were much mitigated, and at the end of three days more, the irritation had completely subsided.

If the attack of conjunctivitis be less violent and somewhat more protracted, constituting the sub-acute form of the disease, it is scarcely possible that blood-letting can be requisite. It is in instances of this kind that scarification of the conjunctival vessels has been usually recommended. This is a proceeding which I never adopt, the quantity of blood abstracted by this operation being usually so inconsiderable as to render it, as a method of blood-letting, perfectly inefficacious; and it is difficult to see on what other principle it can be serviceable. Besides scarification, counter-irritation is also usually recommended; and I do not deny that in some instances the application of a blister to the temple, or to the nape of the neck, may be useful. If the disease, however, be at all protracted, this is not the treatment I should recommend, but rather one, the details of which I shall give in my next lecture.

DUBLIN LYING-IN HOSPITAL.

To the Editor of THE LANCET.

SIR:—While looking through some old books of the Royal College of Surgeons of Ireland, some time since, with quite other objects, I found that, in its earliest years, it had met at the Lying-in Hospital, Rutland-square, which had been chartered in 1756, as the College was in 1784, that hospital having been opened first on the 25th of March, 1745, by Dr. Bartholomew Mosse, in George's-lane, and afterwards established, by charter, in Rutland-square, and opened on the 8th December, 1757. I also alighted casually on a correspondence between the governors and guardians of that hospital and the Court of Examiners of the College, therein inserted, which contained some remarkable references to a few parts of the charter and by-laws of the hospital, which induced me, for the first time, to doubt whether, in two or three very material points, the practice, at present, and of late, and for many years past also, of the governors and guardians, as to the master of the hospital, be not wholly at variance, both with their charter of 26th July, 1756, enrolled on the 2nd December, 1756 (or 24th of George II.), and the enlarged Act of the 25th of George III., as well as with their own earlier by-laws and ordinances, adopted, in conformity therewith, on the 28th January, 1786, when 18 governors were present; and printed, by order of the governors of the said hospital, in 1789.

The present practice is, to charge a large sum to every pupil who begins to attend the hospital, for the sake of practice, and this without requiring any previous attendance on midwifery lectures; and to allow the master, as far as I can ascertain, the whole profit thus accruing; and also to apply for a considerable annual grant from Parliament, to fill up the deficiencies in the funds, for the support of the hospital; but I believe that the intentions of the above-named charter, act, and original by-laws were, that all male and female pupils should be allowed to attend there, gratis, for practical instruction, or as page 67 of the book which I shall just now quote calls it, "practical knowledge," or after the male pupils had perhaps previously merely paid and attended the master for his lectures, as other lecturers are paid (or after having attended some other similar competent lecturer on midwifery), that whatever was paid for female

pupils, presented by different counties, for the benefit of their own localities, should go wholly to the hospital funds, for their support and maintenance, as stated by the act in page 67 of the same book, which words are illegally changed into "instruction and maintenance," in the form of a presentment, suggested to grand juries in page 66, and in the accompanying circular letter from the hospital on the same page. However, the presentment expressly stated, that the £30 to be raised off the county is to be paid to the treasurer of the hospital, who, of course, must account for it to the commissioners of imprest accounts, and not to be paid to the master, in whole or in part; and I believe that he should instruct them gratis, practically, in return for his residence, salary, and allowances; in short, that it was never contemplated to allow the master to make, as of late years, one or two thousand a-year, by sums demanded from the extern and intern male and female pupils (changing every six or even every three months), and from the assistants of the hospital (changing every three years), and in addition to his free residence and various allowances, and the intended and allowed profits of his courses of lectures; and all this, besides the public name and private practice, which are procured him, during his seven years' mastership, and even afterwards, by the notoriety thus obtained. Nor was it ever meant, I believe, that the governors and guardians should apply to Parliament to make up all deficiencies in the funds of the hospital, which might derive, as well as the master, a large income from pupils. Nor was it ever contemplated that so many things should be turned to the personal profit of the master alone.

Considering all this to be an abuse, and not knowing any individual who seems ever to have thought of it, until I was as above led to examine into it, I have conceived it to be a duty to bring it under notice, and therefore subjoin some extracts from the charter and by-laws, which I have recently had an opportunity of examining, and which, I think, entirely support the correctness of my first impression, excited as above explained.

I copy these extracts from an old and very scarce little book, which a friend procured for me.

In order that it may be searched for and examined, I mention its title in full, though rather long, namely, "A List of the Proprietors of Licences for Private Sedan Chairs, 25th March, 1788 (from the Registry of 1st Feb., 1787) alphabetically ranged; with their respective Residences, published as required by Law.* To which are added the Conditions, and also a Scheme for Card Assemblies, &c. &c. Also a List of the original Subscribers (Ladies 90, Gentlemen 110; Total, 200) towards building the Public (Assembly) Rooms, at the Rotunda; and the Conditions for establishing Six Perpetual Annual Assemblies (on the weeks alternate with the Castle Balls, from 20th January to 20th April in every year); with some Remarks on the State of the Lying-in Hospital, its Buildings, and their present unfinished Condition.† There are likewise reinserted the Charter, By-laws, Tables, Statements, &c. Printed by Order of the Governors of the said Hospital." The copy, which I have, has also a printed title in it, as "Lying-in Hospital Tracts, MDCCLXXXIX," and Proprietor of Licensed Sedan Chairs. No.—; An Annual Benefactor."

The charter states, section 2, that two chief objects of it were, "That it may prevent such gentlemen, as intend to practise midwifery, in our said kingdom, from going abroad for instruction;" and "That by admitting and instructing in such hospital women, who, after some time spent there, being duly qualified, may settle in such parts of our said kingdom, as must stand in need of such persons, it will be a means of preventing the unhappy effects, owing to the ignorance of the generality of country midwives." It appears by section 3, that Dr. Mosse, who originated this Dublin Lying-in Hospital, first founded his own hospital, by his own funds and by private subscriptions, and supported it thus for nearly twelve years in George's-lane (see Pettigrew and Oulton's Almanack for 1839, p. 316), as many accoucheurs have since done in Dublin, on speculation, and by the charter he was made master for life by section 18.

Section 17 directs, "That all students in physic, surgeons, or apprentices to surgeons, all such others, whether men or women, as intend to practise midwifery, and shall be approved of by the said master, shall and may have full liberty to attend the said hospital, and be instructed under the said

* I cannot help mentioning, that the list of keepers of private sedan chairs in 1787-8 amounts to 250, and it had at one time amounted to 471, of which, however, 220 were unproductive, as bad pays. This is striking, as contrasted with Dublin at present, which, probably, has not 30 sedan chairs, and, perhaps, not three private ones.

† The concluding sentence of the governor's appeal, as to the unfinished state of the rooms (p. 6), and the public having left them, after gratuitous labours, in the lurch for the money, is remarkably true of all times:—"May their conduct, in this inconsiderable instance, remain a lasting warning to others, how absurd, how ineffectual, and how dangerous it may be, to presume to attempt to serve the public, without deriving pecuniary advantage to the individual."

master and his two assistants." By the by-law 9, the male pupils must never at any time exceed six. This does not say one word of their being obliged to pay a large sum, for the exclusive benefit of the master, in order to obtain his approval, and without any commensurate advantage whatever to the assistants for their correlative instruction, or even to the funds of the hospital.

The same section also directs that the master shall have two assistant men-midwives, to be proposed by him the said master, and to be approved of by the sitting committee; but this does not say at all that the assistants shall be obliged to pay some hundreds of pounds, for the master's proposal, solely for his use, or for their approval, without any prospect of benefit from the pupils by their joint instruction, or any adequate service to the funds of the charity.

Section 18 implies, that masters are not necessary to be elected, as is now uniformly the case, consecutively for seven successive years, but merely, that "no one person, however deserving, shall be capable of being elected master of the said hospital, who has been master for seven years, either successively or at different times, but amounting in the whole to seven years;" and that, consequently, the governors might elect, or rather annually re-elect, a master, for a shorter number of years, and thus make it circulate among the profession, instead of being, as of late, like a kind of seven years' enormous annuity, or even, what is still worse, as a patrimony, heir-loom, dower, or marriage settlement, in a family.

Section 19 ordains, that "in all future elections of master, regard be always had and preference given, to such as have been assistants to the former, or any master of the hospital; and in proposing and appointing all future assistants, regard be always had and preference given to such as have been instructed in the said hospital." This, I believe, is strictly enforced, and of course it is the interest of the master and board to do so. But these extracts do not say one word of assistants or pupils being obliged to pay large sums to the master.

Section 14 ordains, that the "governors and guardians present at any general meeting, may, from time to time, elect and nominate such fit and able persons to be governors or guardians, as they shall think most likely to encourage and promote the charitable designs of the said corporation;" but this does not say that they shall fix an enormous annual subscription, namely, £12 10s. (see page 27), as the only test, and thus reduce the number of governors and guardians to a very small number; whereas by section 14 they are intended to amount to, but "shall never be more in number in the whole than 60 governors and guardians," of whom 13 persons are ex-officio guardians for the time being, and on the 1st of March, 1788 (see p. 30), three others who had been appointed by charter, and there were but two of the 60 governorships not filled up; that is, there were 42 by subscription. How many now? By page 316 of Pettigrew and Oulton's Dublin Almanack, for 1839, it appears that there are 19 vacancies; and as the same says that there are 12 ex-officio guardians by the charter, and one and his heirs for ever, appointed by the same, there are at present, of course, only 28 governors by subscription and election, among which entire reduced numbers the whole power is kept, and, of course, too, the 28, if they act together, can outvote the 13 appointed by the charter, in favour of any nominees of their own, or for their friends, by which means a very small number have now all power always in their hands.

By-law 14 ordains as follows:—"That at the expiration of the term of residence of any master, the assistants to be continued with the express approbation of the board, but not otherwise; the privilege of the master to recommend being considered as terminating with his residence." This by-law is inconsistent with the charter's order for his primary approval by the board, on the master's recommendation, prior to entrance. And this also shows that the appointment of successive resident male assistants, each of whom, or only two at a time, by section 19 of the charter, must not be longer than for the full space of three years, while the master could not in any case continue for more than seven (viz., two threes, and one-third) could not be intended by the charter, to be by pecuniary purchase *à priori* from the master, with the board's sanction; for, in that case, the assistants would have by law, of course, a right to finish their purchased three years, whether the master left it or not, without any new approval by the board.

By-law 15 says, "That as six months will be found sufficient for the instruction of female pupils, four (if they offer) be received, in each year, two at a time. That they diet with the housekeeper. That of the £30 presented by their respective counties, £10 be considered for their diet, £10 for the master for their instruction, and £10 for incidents and expenses of journey."

This mode of payment to the master, by any pupils, male or female, in lieu perhaps of salary, is not contemplated by the charter, and its confinement here by by-law to females, and their number fixed at four annually, two at a time, and that for only six months, as mere midwives, shows, that at first it was not contemplated, even by the governors and guardians, to charge male pupils at all, and that male pupils were to continue longer, for higher instruction, as accoucheurs; and not to change every six months, or even every three months, as I have known, to let in

new ones, for the master's benefit. I doubt much, too, if the number of female pupils has been confined to two at a time, or four in a year, as ordered by this by-law; and by Pettigrew and Oulton's Dublin Almanack, pages 154 and 155, I see, that the masters only give courses of three months. The same pages state, that the pupils must have attended the lectures and practice of the hospital for six months at least; which, however, as to the lectures, is certainly not the case, either by the charter or by-laws, as those of any other respectable teacher of midwifery are equally recognised; and as to six months' practice, I know that that was very frequently not required, but only three months; which, of course, nearly doubled the profits. Whether any three months' pupils are admitted at present I am unable to say. By the way, why does the same book, pages 154 and 316, state only one ex-master as living, namely, Dr. Robert Collins? whereas every one knows that Dr. Labbatt, a very eminent man, was also a master, and is living in Dublin in high practice. It is also directly contrary to the wording of the Act 23 and 24 George III., ch. 57, section 11, which ordains:—

"And be it enacted, by the authority aforesaid, that it shall and may be lawful for the grand juries of four of the several counties throughout this kingdom, in alphabetical rotation, each annually, to assess and raise off their respective counties, at such times as they may judge proper (at an interval of five years at the least, between any repetition of such presentment), a sum of thirty pounds sterling; and to apply the same for the support and maintenance of one female pupil, to be received and instructed in the Lying-in Hospital, Dublin; and that the said pupil shall be a married person, aged between thirty and forty years, who has had children, and who shall not be likely to become resident in the town, where the respective county infirmaries shall have been already established."

This shows that the whole £30 is for the support and maintenance of the female pupil to be received and instructed in the Lying-in Hospital, Dublin, and not any of it for the master's profit; and its being only done annually, implies that the four women should reside a year, and not six months, as the by-law cuts it down, which is the reason also that £30 was fixed for her expenses, as a fair annual support.

Section 3 of the charter says, that the "salaries of officers or servants to be employed by the said corporation, shall not, in the whole, at any time, exceed one-fifth part of the clear yearly profits, interest, and produce of the real and personal estate to them at that time belonging;" which shows clearly, that the present plan of giving the master no salary, and the assistants no salary, and then allowing the master alone to make one or two thousands a-year by pupils and assistants, and the deficit of the hospital funds to be made up by Parliament, is contrary to law and an evasion of the provisions of the charter. That the master, as well as the secretary, are to be salaried officers, appears evident from section 11 and from section 12, which distinguishes between officers and inferior officers, giving the whole board of members, at the quarterly meetings, power to displace the superior ones, and the committee to displace only the inferior ones, *ad interim*, under the powers of which an instance did occur many years since, where the governors cashiered the master for misconduct; and in page 50, though no sum is marked as salary to the master, yet his allowance for coals is marked, and his name is put down under the head "Officers' salaries."

The charter, section 14, enacts, "That the governors shall keep fair and just accounts in writing of all the receipts and payments, by or to them, their officers and agents respectively;" which receipts, including all the master's for pupils, must (see page 45) be laid before the commissioners of imprest accounts.

That the male pupils are not to pay for attending the practice of the hospital at all, and especially that their payments were not to go to the sole aggrandisement of the master, omitting the benefit both of the assistants and of the charity, is indeed obvious from the by-laws and ordinances (pages 49—62), as finally adopted by the governors and guardians, on 28th January, 1786, and approved of by the Chancellor and three Lord Chief Judges of his Majesty's Courts in Ireland, as ordered by the charter, section 11, and by 25th George III., chap. 43, section 9. These legalised by-laws are all still in force, without omission, addition, or alteration in any material matters.

By-law 11 ordains "That the master of the hospital be required, once or more in every year, to read a course of lectures on midwifery, and that a registry of persons attending the same be regularly kept."

These lectures, it appears, by being ordered once annually, or more in every year, were intended first for annual, or at least six months' pupils, and were meant to be attended by students of medicine and surgery in general, and by physicians and surgeons wishing to study midwifery, and not merely to be given privately only to the actual intern or extern practical pupils of that hospital, attending there alone, who were designed afterwards to add practical experience to theoretical knowledge, previously acquired at lectures. This also does not even enforce the attendance on his lectures, by pupils, while practically attending the hospital, nor even before; but rather contemplates that they should attend his lectures first (or those of some other respectable lec-

turer), in order to get general ideas, and afterwards become practical working pupils, like clinical clerks, resident at surgical or medical hospitals, which is also more apparent from the next by-law 12, which ordains,

"Although we deem it highly advantageous to the public, that students in midwifery should be allowed to profit by the experience to be derived from practice in hospitals; yet, as it is injurious to the character of this hospital, and unprecedented in every other, as well as inconsistent with the peace of mind and safety of patients, to be attended by young men totally ignorant of midwifery; it is therefore resolved, that no student shall in future, from the 1st of November, 1787, be admitted, to practise in this hospital, without producing a certificate, signed either by a respectable teacher or practitioner in midwifery, by two of the fellows of the King and Queen's College of Physicians, in Dublin, or by the President and two Censors of the Royal College of Surgeons, in Ireland, that he is a proper qualified person to be admitted a pupil or student into the said hospital; the certificate to be approved of by the board of governors, and his name and time of admission to be registered."

Certainly, when I was a resident pupil in the hospital for six months, this salutary rule was not attended to; and I did nothing but pay the master and get in. This rule obviously implies, that pupils should first attend a course of lectures on midwifery, either by the master or some other equally respectable teacher, and then be permitted to attend the patients, as practical pupils, and be registered, as such, a second time, by the board, as they were before by the master, for prior attendance on his lectures. This also does not say one word of allowing the master to charge large sums to the practical pupils. The government established the hospital by charter, and made it annual and other grants for their free benefit.

By-law 13 ordains:—As we are, by our charter, bound to give a preference, in election for master, to those who have served the office of assistant, it is therefore resolved, that no person shall be deemed eligible, as assistant, who shall not lay satisfactory proofs before a board, that he has been regularly educated a physician or surgeon, or has taken a degree in some university, and who has not also studied midwifery under some reputable teacher. This, I believe, is faithfully attended to, and the assistants, as far as I know, have all been previously pupils of the master, or at least of the hospital itself. But as to pupils, certainly, when I, many years since, entered as a resident pupil at the Lying-in Hospital, the rule as to the previous attendance by such on lectures was not observed at all as to pupils, nor, I believe, ever is strictly observed; for I had never attended any lectures on the subject before I was admitted to the practice.

This clearly puts the master's lectures on a par with those of other reputable teachers, and it was from those lectures that he was to derive profit, by payments, like other lecturers, as well as from free residence, competent allowance, and a suitable moderate salary direct from the funds, and not at all from the practical working pupils, either male or female.

As I do not myself practice or lecture on midwifery, though I studied it for the sake of general knowledge in my profession, at this Lying-in Hospital, I have no personal interest whatever in this question. I wish also to say, that the hospital was and is admirably managed, and has been so, I believe (with one exception of one master, who was, I have heard, expelled many years ago by the governors), ever since its foundation.

November, 1839. OBSTETRICUS.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, Nov. 12, 1839.

Sir B. C. BRODIE, President.

As usual, the first meeting was a crowded one, and many Fellows and visitors, unable to procure seats, were obliged to leave the Society. The practice of keeping the visitors in the ante-room, until the President has taken his seat in the library, and his permission has been asked for the admission of the guests, is still persevered in. We believe such a custom obtains in no other learned society. The meeting lasted one hour and twenty-five minutes, eighteen minutes of which were consumed in the announcement of gifts to the Society in the shape of books, and the reading of recommendations for new members—one recommendation bearing 22 signatures, all of which were read. Surely it is not always necessary for the title-page of the book to be read in full! One reformation of importance, commenced at the close of the last session, and still continued, deserves mention. Instead of reading a long abstract of the papers read at the previous meeting, the secretary now only announces their titles, which, as no discussion follows, is quite sufficient.

CASE OF STRANGULATED HERNIA,

In which the Bowel was ruptured by the Patient, in his efforts to reduce it. By BENJAMIN TRAVERS, F.R.S., *Senior Surgeon to St. Thomas's Hospital.*

The patient in this case was a strong and active young man, 20 years of age, and had been from his birth the subject of congenital hernia. Having always been able to reduce

the swelling by lying down and gently pressing it with his hands, he had concealed the existence of his infirmity altogether from his family. On the occasion here described, however, he had not been so fortunate; the hernia had descended in the afternoon of the day preceding that on which he was seen by Mr. Travers, who thus describes the course of events:—"Upon inquiry I learned, that at six o'clock of the preceding evening, the volume of the tumour became so increased as to oppose a resistance to its return, which the young man could not overcome. In addition to continued violent manipulations, he compressed it forcibly between his hands and thighs, and, as if reckless from ill success, actually made a section of the integuments with a razor transversely to the chord." The author first saw him at three o'clock on the following morning, when he was pulseless, with livid lips, and other signs of approaching dissolution. The scrotum was enormously distended and of a sanguineous hue. Having given the patient some warm brandy and water, Mr. Travers proceeded to operate, when, on opening the sac and handling the parts, the protruded bowel slipped into the belly without its being necessary to enlarge the ring. The patient lived three hours after the operation, when it was found, on examination, that a portion of the lower third of the ilium, equal to a hand's-breadth in extent, presented the appearances of recent strangulation, accompanied with laceration and extravasation of blood between the peritonæl and muscular coats. The mesentary was stripped from the intestine to the extent of an inch, and an irregular aperture was formed in the bowel to the same extent. The paper contains some other cases of ruptured bowel from external violence, together with some remarks on the common cause of death after operations for hernia, with other interesting points, the most important of which will be found alluded to in the following discussion:—

Mr. Macilwain said that the author of the paper had attributed the failure of operations for strangulated hernia to an atony or want of power in the strangulated portion of intestine. This might, no doubt, occasionally be the case, but he Mr. M., believed was not generally so. Indeed, he considered that it would be extremely difficult to state any one cause that the fatality consequent upon operations might in general be attributed to. Causes would vary with the case. His experience had led him to conclude that this want of success was in many cases to be referred to two causes, viz., manipulations and the taxis, carried beyond a proper extent; and the mode in which the treatment after the operation was conducted. The bowel in most cases was inflamed, and this inflammation was often further excited by the too frequently followed plan of giving strong purgative medicine soon after the operation. He could not help thinking that such a mode of proceeding was calculated to increase the inflammation already set up, and was by no means a philosophical plan of action, for the cause being removed by the operation, it was but reasonable to expect that the effects would cease. He had long ago abandoned this practice, and although he operated upon patients in crowded and ill-ventilated parts of the city, and under all kinds of disadvantages, it was very rare that fatal cases occurred.

Dr. Weatherhead believed that the two chief causes of the failure of operations for hernia consisted in the delay which took place before the performance of the operation, and in the violence used in the attempts to reduce the hernia by the taxis; which, however gently the manipulations might be conducted, must aggravate the inflammation that was present. With the view of obviating these difficulties, he had instructed Weiss to manufacture a minute trochar, which was to be inserted into the hernial tumour (in cases where there were no adhesions), and the stillette being withdrawn; the collection of air, upon which the strangulation depended, allowed to escape through the canula. The trochar was so small that it would not "divide" the fibres of the gut, but only "separate" them. He had shown the instrument to Sir A. Cooper. The advantages which this operation held out were, the freedom from hæmorrhage, and the non-necessity for the operator to possess a knowledge of anatomy. The operation could also be performed before the intestine had been injured by attempts at its reduction by the taxis.

Mr. Cæsar Hawkins observed that the more experience we had the greater were the number of exceptions we should find to all general rules. There were two observations in the paper under discussion, which he might refer to, and relate exceptions to the general rules there laid down. Mr. Travers had stated, that when a rupture of intestine took place, the symptoms were generally those of collapse, the pulse was feeble, the extremities cold, and the patient was immediately struck as if with death. As an exception to this rule he would relate the following case:—A man labouring under hernia, but who did not wear a truss, was leading a horse through the yard of St. James's Palace, when the animal becoming restive, the man was pushed violently against a wall. He immediately felt a violent pain in the hernia. He was shortly afterwards admitted into St. George's Hospital; there was then no bowel in the sac, but just above this situation he complained of moderate pain only. For forty hours he appeared to be doing well; he suffered from no bad symptoms; his mind was cheer-

ful, and his countenance free from anxiety. At the expiration of the time mentioned, he was suddenly seized, while drinking some tea, with symptoms of depression, and died at the end of four hours. On examination after death, the bowel was not much inflamed, but a rupture was found of an inch in length, extending through the three coats of the intestine. This rupture had, no doubt, occurred at the time of the accident; and yet he lived forty-four hours, the symptoms during the last four hours only leading to the supposition of the mischief. The other circumstance referred to by the author of the paper, was the occurrence of extravasation of blood into the abdomen; which Mr. Travers stated, in opposition to rupture of the bowel, might occur to a great extent, and the patient live a long time without any symptoms of depression, or the occurrence of any pain. A man having been crushed in the abdomen, was admitted into St. George's Hospital with symptoms of internal hæmorrhage. At the expiration of two or three days he was seized with intolerable pain in the belly, accompanied with tympanitis. Though the presence of severe inflammation was indicated, the patient was in so low a state, that active depletion was forbidden, and leeches only once were applied; he died. A large quantity of blood was found extravasated into the pelvis, and also both within and without the peritonæl cavity of the abdomen. There was no rupture of the intestine, the mesentery was slightly torn, as was also a small artery of that membrane.

Sir B. Brodie recollected a case in which the mesenteric artery was wounded in a duel. The abdomen contained a large quantity of blood; the patient suffered under great pain. In another case, in which a man received a blow upon the liver, he suffered much pain in the abdomen. The liver was ruptured, but only two or three ounces of blood were found in the abdomen. Regarding the cause of death after operations for strangulated hernia, Mr. Travers did not say that inflammation might not occur, but that the paralysis which resulted from the confinement of the bowel was a frequent cause of a fatal termination, the consequent obstruction producing inflammation. He, Sir Benjamin, thought that generally Mr. Travers was right. He also believed, in accordance with this view, that the success of the operation for strangulated hernia would depend mainly upon the time which was allowed to elapse before it was resorted to. When he was a student at St. George's, patients with strangulated hernia were allowed to go three or four days before they were operated on; the consequence was, that they almost all died. Now patients were operated upon soon after their admission, and the success of the operation was very great. The early performance of the operation explained also its success in private practice. With respect to the correctness of Mr. Travers' observation, he might also mention that he had seen cases in which the operation was early performed do well, although the gut was in a highly inflamed state; while in other cases, in which the operation had been longer delayed, although the intestine was not even discoloured, the patients perished. As far as his experience went, he thought it made very little difference, when the gut had remained long down, whether it was returned by operation or otherwise, as the success would be about equal. In a case upon which he had operated, and in which the stricture was at the external ring, he had merely divided this and returned the hernia; the man, however, died.

Mr. C. Hawkins also recollected the case of a man who had his hernia reduced by the taxis, twelve hours after the occurrence of the strangulation; yet in this case death resulted.

CASE OF UTERINE HÆMORRHAGE,

In which the Blood escaped through the Fallopian Tubes. By W. F. Barlow, *Esq., Communicated by Dr.* M. Hall.

A young woman, twenty-two years of age, who had miscarried at the sixth month, with much flooding, had an attack of purpura hæmorrhagica, from which she died five days after abortion had taken place. On dissection, a quantity of blood was found to have been effused into the abdomen and pelvis, some of which was coagulated; and, as clots were found projecting from the fimbriated extremities of the fallopian tubes, from which, as the author considers, it was evident they had been expelled, he infers that uterine hæmorrhage had taken place through these tubes into the abdomen. A preparation of one of the tubes, having a lobulated coagulum projecting from it, was shown to the meeting, together with a drawing from it when recent. The uterus was less than the size it generally assumes a week after delivery, and a coagulum of blood partly occupied the neck of the organ.

Dr. Johnson thought that the case was misnamed, for he considered the hæmorrhage had not taken place from the uterus, through the fallopian tubes, but that it was the result of the purpura hæmorrhagica, under which the patient laboured.

Mr. Barlow considered that, as the hæmorrhage from the uterus had occurred previous to the appearance of the purpura, and as the blood in other organs was thin, while that in the fallopian tubes was coagulated, together with the great quantity of blood in the pelvis, the opinion of Dr. Johnson was erroneous.

Dr. BRIGHT inquired if it was not just possible that the blood found in the fallopian tubes had been absorbed by them from the abdomen. In cases where pus existed in any quantity in the abdomen, it was not unusual to find the fallopian tubes gorged with it, as if it had been taken up from the cavity by imbibition.

Dr. LOCOCK would mention two cases, which might, perhaps, throw some light on the source of hæmorrhage in the case under consideration. It was certainly difficult to conceive that blood could escape through the fallopian tube from the uterus, particularly when we recollected the state of that passage during the third or fourth months of pregnancy. Besides, it would be difficult to explain why the blood should take such an unusual course in preference to making its passage through the mouth of the uterus. The late Dr. Gooch had a patient under his care, who, during the third and fourth month of utero-gestation, was suddenly seized with extreme collapse; she suffered much pain for several hours, and died in about twelve hours from the first seizure. He (Dr. Locock) was present at the examination of the body. The pregnancy was found to be fallopian, and the symptoms of internal hæmorrhage had been produced by the ovum rupturing the vessels of the tube, which were, however, small. Two pints of blood were, nevertheless, found in the abdominal and pelvic cavities. A lady had lately died in Scotland under similar circumstances; she was in the third or fourth month of her pregnancy, when she was suddenly seized with symptoms of extraordinary collapse, and died in a few hours. On hearing of the occurrence, he immediately wrote to the medical man in attendance, requesting him to examine the fallopian tubes, with reference to the point he had alluded to. Unfortunately the examination had taken place before his letter arrived, and the fallopian tubes had not been examined. No source from whence the hæmorrhage had proceeded could be detected. It would now be impossible to say whether the hæmorrhage proceeded from fallopian pregnancy or not.

Sir B. BRODIE had attended the case, many years since, of a young woman with imperforate vagina, in which a large quantity of the menstrual fluid had collected in the uterus. The obstruction in the vagina was perforated by a trochar, and a quantity of dark grumous fluid removed from the uterus. She died shortly after this, and a large quantity of fluid, similar to that evacuated, was found in the cavity of the abdomen. He was led to think at the time, that this fluid had passed from the uterus by means of the fallopian tubes. The collection in the abdomen might, however, have been vicarious, for when the uterus had ceased to secrete the fluid, the peritoneum might have commenced doing so.

Dr. MOORE had been informed of a case of retention of the menses in a young female eighteen years of age. She had been under medical treatment three or four years. At the monthly period she experienced exacerbations of fever, with pain. The mammæ were well developed. The abdomen became swollen and painful. The enlargement at one time was so great that she could not stand upright. One day, while ironing, she felt something suddenly give way; the pain was instantly relieved, but inflammation subsequently came on, and she died. After death the vagina was found imperforate for two inches of its extent. The fimbriated extremity of the right fallopian tube was ruptured. The abdomen contained a large quantity of blood.—A lady was seized with a severe pain in the abdomen, and became exsanguinated. After death, one of the fallopian tubes was found ruptured, and a large quantity of blood had collected in the abdomen.

Dr. BURNE had been present at the examination of a case which had occurred in the practice of the late Dr. Gooch. The abdomen and pelvis contained a large quantity of blood; one of the fallopian tubes was ruptured. The lady was neither married nor pregnant.

Mr. ERASMUS WILSON observed, that the examination of the preparation presented for the inspection of the Society, with the detail of the facts contained in the paper, did not appear to him to lead to the inference that the blood had made its way from the cavity of the uterus into that of the pelvis, by so contracted a channel as that of the fallopian tube. It would be seen by the preparation that the distal half of the fallopian tube was very much distended, and that a large coagulum, modelled by the interior of the tube, was partially extruded from its extremity, but that no corresponding dilatation appeared to exist in the proximal half of the tube, which retained its natural size, and admitted merely of the passage of a bristle. He believed that abortion, in many instances, resulted from sanguineous determination to the mucous membrane of the uterus, producing violent conjestion of that membrane, which relieved itself by effusion of blood from the capillaries. Now, when it was recollected that the mucous lining of the fallopian tubes is the same mucous membrane which lines the cavity of the uterus, the extension of the conjestion to one or both of those tubes ceased to be a subject of wonder, but was plainly referrible to the general principle of of sympathy which regulates the phenomena of continuous surfaces. If this reasoning were admitted, it would open a mine of interesting investigation to the pathologist, and would lead to the more frequent examination of the mucous surface of the fallopian tubes in cases of fatal abortion.

WESTMINSTER MEDICAL SOCIETY.

Saturday, Nov. 16, 1839.

Mr. Streeter, President.

GONORRHŒA—DISCUSSION UPON SUICIDE.

Mr. Gregory Smith detailed some particulars of the case of an aged woman, who contracted a virulent gonorrhœa from her husband, who was not himself diseased, but who had been connected with an impure woman an hour or two before he had communication with his wife. The man's glans penis was very hard, and was not covered by the prepuce. Some conversation followed this case, but nothing of importance was elicited, and the Chairman called on Dr. Johnson, as the mover of the adjournment at the last meeting, to open the

DISCUSSION UPON SUICIDE.

Dr. Johnson adhered to the classification he had formerly made. It had been objected to the second class that the overmastery of reason, by passion or feeling, was in fact insanity; but how stood the case in reference to the individuals whom he had classed under this head? Why, the moment after the fit of excitement was past, they were perfectly sane; now this was not the case with monomania, for the diseased thought in that condition still continued. There was a point of great importance in a medico-legal point of view connected with this subject. Suppose a man in a fit of excitement were to plunge a knife into his throat, but failed to cut the carotid artery, and recovered; would it be said that this man was insane, and should be sent to a madhouse? It might be answered, that this was only temporary insanity, but who was to mark the moment when reason ceased to act; or, who could certify that this man did not intend to again attempt to destroy himself. According to the doctrine laid down by Dr. Thomson and Mr. Winslow, they would have this man secured, but would they sign a certificate stating that he was insane? He (Dr. Johnson) would not do so. There was another medico-legal point of importance connected with the subject. Suppose an individual, just previous to blowing out his brains, disposed of his property by will in a legitimate manner, having had no trace of insanity about him previous to the commission of self-destruction, and the jury found a verdict that he was insane at the time he committed suicide, his property would be thrown into chancery, and God knew when it would come out again. He thought coroner's juries, by bringing in a verdict of temporary insanity in most cases of suicide, were rather doing injury than benefit to society, as well as to the family of the deceased; for as related to the first, the suicide admitted of more palliation than if the verdict were *felo de se;* and, as related to the second, the fear that was induced by the presence of insanity in a family far outbalanced any evils which might result from a verdict of *felo de se.*

Mr. Downing said, that Mr. Winslow in his paper had stated that the promulgation of violent political opinions was productive of a great number of suicides; this, however, was not founded on fact; on the contrary, a reference to statistics would prove that the times when democratic principles prevailed the least, were those in which suicide was most prevalent. Thus, in Paris, during the flush of the revolution from 1794 to 1804, the yearly average of suicides was 107; from 1814 to 1823, they had increased to 334 annually; while from 1830 to 1835, the yearly average had reached to 382. Regarding the state of mind which prevailed when a person committed suicide, he believed that the very energy of mind which produced great actions also produced suicide. Many, no doubt, resolved well upon the subject previous to the commission of the act. The celebrated Prince de Condé made his will upon the wall, and then coolly and deliberately hung himself. Devergie had mentiond the case of a barber who, having cut his throat twice without killing himself, studied the anatomy of the neck diligently, and then divided the carotid arteries. Other cases of a similar character were recorded. He thought that coroner's juries should, in cases where there was no evidence of insanity, bring in a verdict of *felo de se,* and not take away the odium attached to the crime, by a verdict of temporary insanity.

Mr. Beevor remarked, that it was rare for suicide to be the result of bodily suffering, which was rather an argument against the sanity of the self-destroyer, inasmuch as the corporeal pain would cease with life, while the mental suffering would not find such a relief, but be continued after the death of the body.

Dr. Chowne, in reference to the question as to the presence of insanity in all suicides, would refer rather to nations than to individuals, in support of the opinion that self-destruction was sometimes a deliberate act. The Gentoos, the Syrians, and the Japanese, considered suicide, under certain circumstances, to be an act of heroism, and thousands of persons destroyed themselves yearly under this impression. It was not uncommon in France, and cases had occurred in this country, for two persons to determine on the commission of suicide, in the same way, under the same circumstances, and at the same time. This was a proof that they were not mad, for had they been so, they would not have agreed so well as to the course which they were about to pursue. The view of insanity

taken by the law was frequently paradoxical; the Society had not to consider the question legally, but medically. If the mother of an illegitimate child, under the impression of degradation, determined to destroy her babe and then herself, but was arrested after the murder of her infant, the madder act of the two, she was taken to the Old Bailey and executed; whereas if she destroyed herself also, the verdict would be "temporary insanity." Such was the view which the law in its humanity, not in its wisdom, took of the matter. He believed that if verdicts of *felo de se* were more common, suicides would be less frequent; for it had been found by experience, that making the act of self-destruction one of degradation, had been attended with good effects. Thus there was a mania among the Milesian women to the commission of suicide, and thousands sacrificed themselves. So long as the act was allowed to be committed with impunity, the slaughter continued, but the moment a law was passed inflicting degradation and disgrace on the body of the suicide, the self-destruction ceased. In ancient Rome a number of soldiers destroyed themselves, because they were employed in making swords, which they considered a degradation; the suicidal mania was stopped by the passing of a stringent law.

Dr. Reid considered that there was a class of cases of suicide which would not come under either of the heads mentioned by Dr. Johnson. He alluded to those cases of self-destruction which were committed during a temporary attack of delirium from physical causes, occurring in persons in whom there had been no previous sign of insanity. Six cases of attempted suicide had been lately admitted into St. Giles's Infirmary. In one of these a woman attempted her life during the delirium consequent upon an attack of erysipelas, and in another a man tried to cut his throat while labouring under delirium tremens.

Mr. Harwood entered into arguments of considerable length to disprove the proposition of Dr. Thomson, that the act of suicide necessarily implied a state of insanity in the individual. He related the case of a young gentleman of considerable attainments, who, being sent to Cambridge, was expected to take high honours. Instead of pursuing his studies, however, he became dissipated, and finished his career with a pistol. Having written two letters in the calmest manner to his friends, he drew a diagram of the position of the heart, and placing himself before a looking-glass, took a deliberate aim at that organ and expired. He agreed with Dr. Johnson, that persons occasionally reasoned before the commission of self-destruction, and we had an instance in Byron's address to Bonaparte, of a person sitting coolly down and taunting another with not having committed suicide.

"To die a king—or live a slave,
Thy choice was most ignobly brave."

With reference to excited feelings producing suicide, was it not frequent for excited feelings to produce excited acts. Alfieri composed one of his most beautiful pieces in such a paroxysm of enthusiasm, that he was obliged to shed tears. Mallebranche was so affected with palpitation of the heart at reading the works of Descartes, that he was compelled to discontinue his study. It was a maxim with one of the admirals in Elizabeth's reign, that a man should be bordering upon frenzy before he should be trusted with the command of a fleet. Crebillon was so excited during the composition of one of his tragedies, that he was taken for a madman. Might not the excited feeling, carried a little further, produce the act of suicide?

The discussion was adjourned.

TREATMENT OF DYSMENORRHŒA, WITH MERCURIAL ALTERATIVES.

To the Editor of The Lancet.

Sir:—Should the following cases and observations on dysmenorrhœa be deemed worthy of notice by you, I should feel obliged by your giving them a place in your valuable journal. I am, Sir, your very obedient servant,

Robert Dunlop, Surgeon.

9, Chatham-street, Manchester,
November 7th, 1839.

Having been repeatedly foiled in my attempts to subdue this painful disease, after well-directed medical treatment had been continued for a due space of time, I was led to make trial of mercurial alteratives, from the well-known fact of their efficacy in relieving painful affections of many other organs, more especially those affections of a sub-acute inflammatory type. The result has been favourable, so far as my own experience has gone, and I subjoin the two following cases as an example:—

Case 1.—M. Irvine, æt. 28, of a rather open habit of body, has been married about five years; never has been pregnant; catamenia she states to have been regular since the age of 15 or 16, about which period she first began to menstruate; no remarkable deviation has ever taken place, either as regards the quantity or quality of the discharge; her periods have been passed with little inconvenience, until about two years ago, when the painful symptoms first began to manifest themselves; each period since has been more or less attended with excruciating suffering, which was of short dura-

tion in the early stage of the complaint, and relieved by the menstrual discharge, but subsequently the pain has continued throughout the whole period, enduring a day or two after the discharge has totally ceased. Her present symptoms are: bowels costive; countenance sallow, with a somewhat haggard appearance; catamenia regular; no tenderness upon pressure on the sacrum; paroxysms of pain lasting from six to eight days, and so severe as to compel her frequently to assume the horizontal posture; she remains tolerably free from pain in the intervals, but describes her present existence to be almost unsupportable, from the unerring certainty of having to undergo at each period the same acute suffering.

April 16, 1838. I ordered the warm hip-bath, and flannels wrung out of hot water to the pubes, together with opiates, during the attack, with great relief; in the interval, her general health was attended to, and her bowels kept sufficiently open; she took for some time preparations of iron, a course of the ioduret of potassium, and, lastly, guaiacum three or four days previous to the expected attack; she took, likewise, the ext. of hyoscyamus, with considerable doses of camphor and the semicupium at bedtime; the result was a temporary relief only, and a gradual return of all her sufferings; she had now passed over six periods, with little prospect of procuring any permanent relief, when I ordered her the following pills to be commenced at least six or eight days previous to the expected attack:—

℞ *Blue pill*, one drachm;
Opium, 6 grains; well compounded and divided into 16 pills. Take one, night and morning, until 12 are taken. Afterwards, one every night.

℞ *Infusion of columba root*, 7 ounces;
Tincture of gentian, 1 ounce;
Carbonate of soda, 1 drachm. Make a mixture. Take two table-spoonfuls two or three times a-day.

She passed over the usual period with scarcely a vestage of pain, and expressed great relief; the discharge she thought was slightly increased in quantity; she took no more medicine, and passed over the next period with a slight pain only; fearing a relapse I prescribed the following pills, to be given eight days before her expected period:—

℞ *Mercury, with chalk;*
Dover's powder; of each 2 scruples;
Extract of black hyoscyamus, half a drachm. Make 24 pills. Take two every night at bedtime.

The result has been a complete relief from her sufferings, and great improvement in her general health.

Case 2, October, 1838. A. Newton, æt. 30, married, of a full and lax habit of body; has had one child, about four years ago; no remarkable deviation has ever occurred in menstruation, until about four months ago, when painful menstruation first began; she complains of an almost constant aching pain in the back, loins, and thighs, symptoms which are greatly aggravated at each period; menses much more profuse than usual, and continue longer than natural; sacrum slightly tender on pressure; tongue furred; pulse 80.

Leeches were first applied to the sacrum in this case, together with cooling aperients and low diet; in the course of time various remedies were had recourse to, together with sedatives when required, but no complete or lasting relief was obtained. I again ordered mercurial alteratives much as in the former case, with complete success; not only were the painful symptoms speedily subdued, but a simultaneous diminution of the catamenia took place.

Remarks.—With reference to these cases we have to observe, that we are not acquainted with any writer who has sufficiently insisted upon the employment of mercurial alteratives in this disease; and, if we mistake not, there exists a general dislike to employing mercurials as remedial agents in dysmenorrhœa, partly from a dread of the baneful influence sometimes observed to follow the use of this mineral, and partly also from the female possessing a constitution generally thought less suited to bear the influence of this remedy, but as yet we have never witnessed any hurtful effects to follow its use as here recommended. There are no doubt other forms of mercury, as being better suited to certain constitutions, which must be left to the judgment of the practitioner to adopt, but as yet we have never found it necessary to have recourse to any other forms than those already specified, which have always been successful in our hands. But whilst we thus strenuously advocate the use of mercurial alteratives, we are far from inferring that every case of dysmenorrhœa should be treated by this remedy, we, however, wish to be distinctly understood that every case of obstinacy, after having resisted general treatment, and where there is no particular organic disease forbidding the use of mercury, should be treated by this remedy as a very certain means of subduing this painful affection.

PRACTICAL OBSERVATIONS
ON THE
ERGOT OF RYE.

To the Editor of The Lancet.

The efficacy of the secale cornutum, in aiding the expulsive efforts of the uterus during the process of parturition, has now,

I apprehend, been established by ample and unequivocal testimony. Still, as it seems that there are some who entertain doubts of its power as an obstetric agent, and as I have been given to understand that some of the public teachers of this branch of the healing art have discouraged the use of the remedy, it may not be altogether a work of supererogation to furnish additional evidence in its favour.

I have now given it in many hundreds of cases, and I have no hesitation in affirming that I know not a medicinal agent more certain, determinate, or speedy in its operation; and, I may add, when administered under certain conditions, more safe in its operation.

Sometimes in ten, but more frequently in twenty or thirty minutes after it has been taken, it augments the force of the parturient efforts, and this it continues to do till the fœtus is fairly expelled. I have observed, not unfrequently, that for a short time after the ergot has been administered, the pains which had previously been experienced will be suspended, and then they will be renewed in almost unintermitting succession. As far as my observation has obtained, the medicine will generally fail in originating the expulsive efforts, unless, indeed, when given in large and repeated doses; but that when the pains have come on spontaneously, the ergot will seldom fail to increase their force and intensity.

Under the influence of the remedy, the placenta, though this is by no means uniformly the case, will be thrown off more speedily than in cases where its use has not been had recourse to.

Caution is undoubtedly requisite in the administration of ergot where there is either want of room in the pelvis, or great rigidity of the soft parts. Where the resistance arises mainly from an unyielding state of the *os uteri*, there is not, according to my experience, the same objection to its use. It may be given in forceps cases, where there is defect of pain, and where it is desirable to bring the head lower down into the pelvis, in order that it may get within reach of the instrument; and in all cases where the obstacle to the birth of the child lies in the absence of vigorous and efficient pain, the exhibition of the ergot will be in place, and will often supersede the necessity for the use of the forceps or vectis.

The cases in which I have found ergot inoperative have been those in which there is a languid and enfeebled state of the system, from whatever cause induced. In such cases it will be advisable, before administering the medicine, to endeavour to effect a rally of the animal powers, by giving food of a cordial and nourishing description. Perhaps few things will answer better, on such occasions, than gruel or arrow-root, or sago, with a moderate quantity of wine or brandy superadded.

Ergot is not so effective in furthering the expulsion of the placenta, in case of its retention, as it is in promoting the birth of the child; and should it be necessary, after all, to introduce the hand into the uterus, the contraction induced by the medicine will be likely to increase the difficulty of manual interference.

When given in cases of menorrhagia, or of uterine hæmorrhage induced by partial separation of the ovum, and in such instances I have now and then found the ergot an availing remedy, it should be exhibited in large doses, as in cases of retarded parturition.

I have repeatedly administered the ergot to *primiparæ*, not only with impunity but advantage. In such cases I deem it expedient to give it in quantities short of a full dose, and with this caution I should not, from the repeated trials I have made in such cases, apprehend a greater likelihood of the child being still-born, than if the case were left to the unassisted efforts of nature.

The powder I find to be the most efficient form in which the medicine can be exhibited. I mix it with water, as warm as the patient can drink it, nor do I find it necessary to make a decoction or infusion of it. If any essence be used, it should be given in warm water, as on this circumstance I find much of its efficacy, or at any rate the speed with which it acts, would seem to depend. Though the essence is not so certain or so speedy in its operation, yet it is not so liable to be rejected by the stomach as is the powder. My usual dose of the powder is half a drachm, but, in first cases, I do not generally exceed fifteen or twenty grains.

The powdered ergot should be kept in a bottle closely corked, and covered so as to exclude the light as much as practicable. A lump of camphor, placed in the bottle in which it is kept, will effectually destroy the insects which are often engendered in this vegetable powder. SENEX.

*** This communication has been authenticated to the Editor.

OBJECTIONABLE USE OF THE ERGOT OF RYE.

To the Editor of THE LANCET.

SIR:—As the following obstetric case illustrates the fact, that in certain constitutions the ergot of rye may induce such violent contractions of the uterus as to cause partial separation of the placenta, and thereby produce uterine hæmorrhage, perhaps you will oblige me by inserting it in your valuable journal.—I am, Sir, your obedient servant, A. J. BURMESTER.

149, Aldersgate-street, October 21, 1839.

CASE.—On the 10th instant, Mrs. N., a married woman, of a delicate frame, aged 23, who had always enjoyed pretty good health, was taken in labour with her first child. On the 11th, after the pains had lasted 24 hours, the os uteri was found, on examination, to be dilated to the size of a half-crown piece, the membranes protruding, and the head presenting, the strength of the patient being at the same time greatly exhausted. Notwithstanding that some slight stimulants were administered, and gentle friction repeatedly applied to the abdomen, the contractions of the uterus were still incapable of advancing labour, the exhaustion at the same time continuing to increase. After this state had existed three hours, 20 minims of Battley's solution of the ergot of rye were administered, without, however, producing any effect. In half an hour more the same dose was repeated, but still to no purpose. After waiting two hours longer, without the condition of the patient being altered in any other respect than that the exhaustion had increased, the following was prescribed:—

℞ *Powder of the ergot of rye*, 1 scruple;
Solution of the ergot of rye, 15 minims.
To be taken in tea.

In about 25 minutes after which a succession of violent contractions of the uterus ensued, accompanied in the intervals by hæmorrhage, which increased in quantity after each pain. The loss of blood being considerable, it was deemed necessary to hasten the birth of the child, which was done by means of the forceps, whereby the head was brought down into the lower part of the vagina, a bandage being at the same time firmly applied round the abdomen of the mother. The hæmorrhage now ceased, the further escape of blood from the vagina being prevented by the head of the child acting as a plug. After the head had been brought into the outlet of the pelvis the forceps were retracted, when the uterus contracted sufficiently to complete the act of parturition at three o'clock P.M., the head presenting in the second position. Scarcely any loss of blood attended the extraction of the placenta, which was removed about 20 minutes after the birth of the child. Both mother and child are doing exceedingly well.

SANATORIUMS, LISSON-GROVE ASYLUMS, AND DISPENSARIES.

To the Editor of THE LANCET.

SIR:—I have perused with much pleasure your remarks on the hypocritical scheme of the "Sanatorium," the details of which abound in magnificent advantages which are to accrue to those who are silly enough to embark capital in such an undertaking, and hold out the "inestimable blessings" that will be the lot of those who intrust their diseases to the care of the proposers of this knight-errant speculation. Has not this scheme already been tried, and signally failed; and was the prosperity of the "Asylum for the Recovery of Health," in Lisson-grove, such that shareholders can be found for a new partnership of the same kind? Alas! no such fortune attended it, for, after lingering on for a number of years in miserable decrepitude, it at last went off in colliquative diarrhœa, and the house and grounds, and the porringers, pots, and pans, were sold for a third of their value. Heartily sick of the concern were the proprietors. From what cause is this attempt made to revive the dead Sanatorium? It is mere dissimulation to use the names of Charity and Religion to induce the good-hearted and unwary to adopt this interested plan. If those respectable men, bankers' and merchants' clerks, felt that they laboured under the want of medical aid more pressingly than other people, and had called on the profession to give them cheap physic, then, indeed, a case would exist for our interference. But, as a body, the clerks of London are much better off than the great majority of their fellows. Perhaps that is the very thing for the few pseudo-Samaritans, who wish to have the clerks under their especial protection. Philanthropy has less to do with the proposal, than the desire to extend the private interests and reputation of the projectors of such institutions. It is usual with them to calculate thus:—"If this scheme be successful, we shall have the advantage of adding to our names the title of Surgeon or Physician to the Royal Asylum for Bankers' Clerks." Attend the clerk *now*; the *master* stands in perspective. Such, in my opinion, is the ultimate view of the speculation.

A question of great importance arises out of this subject. Are Hospitals and Dispensaries really and invariably useful to society? I contend that a portion of positive evil is connected with them, inasmuch as that they hold out a bonus to improvidence in the poorer walks of life. An instance, among many, in illustration, has recently passed under my observation. The husband of a Mrs. Francis, on Saturday last, requested that I would have the kindness to visit her, as he considered that she was dying. I accordingly proceeded to their dwelling, which is situated in Britannia-gardens, Moore-street, Bryanston-square. It was truly a wretched hovel; the walls were black, and dripping with water; there was no fire-place in it, and the windows were broken. The bed on which she lay was a filthy truckle, without sheets, and only covered with a ragged rug. On inquiry, I was informed that she was visited once in two days by some one of the medical officers of the Western General Dispensary, and her disease was stated to be typhus, which, by the by, was, in reality,

pure peritonitis. She was four months pregnant; I found her lying on her side, with her knees bent towards the abdomen; the countenance and skin of the body dark, cold, and dry; her tongue of a raspberry colour, with a black patch running down the sides; the eyes sunken, but glistening, and expressive of acute pain. She screamed when the hand was even laid gently on the abdomen, and moaned incessantly. I instantly had her bowels fomented with hot water and turpentine. The remedies, calomel and opium, in large doses, cayenne pepper and camphor; with salines, to allay the vomiting of a black glairy fluid, which also passed involuntary from her bowels; hot bricks were applied to her feet, with fried salt, in stockings, between the thighs, and to the loins; hot gin and water also were ordered, *ad libitum*. I again saw her twice on that night, and at one o'clock on Sunday morning. Her pulse had then risen. Before, it was thready, sharp, and weak. And the body was warm, and more comfortable to the feel. At eleven o'clock on the same day she was to all appearance much better, and grateful for the attention she had received. Her legs were straight, and she could turn with ease on all sides. In the evening, the same, and I had sanguine hopes that a favourable issue would attend my exertions. At half-past six on Monday morning, I was called up to see her. She evidently had retrograded. This arose from the meddlesome interference of an old female gossip, who had put her veto on the turpentine stupes. On examination, I found faint contractions of the uterus; I called again at one o'clock, and at four in the afternoon; she had aborted; I still persisted in the use of stimuli; at eight o'clock in the evening she evidently was sinking, and, intelligent to the last, died in the night-time.

Now, here is a case which showed great moral turpitude, and downright neglect. The patient, according to their own account, was labouring under a disease which required much greater attention than a visit made once in two days. Yet the first medical attendants, from Friday until now, have not crossed the threshold of this woman's door. So much for Dispensaries! Now as to the improvidence of the parties. The husband of this woman was in constant work, at 20s. a week. She acted as a laundress, and, according to her sister's account, gained on an average 12s. a week. Thus, their united earnings, if properly managed, might have kept them in comparative comfort. But if the labouring classes have every day presented to their notice "medical charities," of one sort or another, in time they lose all independence of character, which a mistaken public deteriorate by every means, while cunning projectors make a tool of them for their own interested purposes.

I have now lying before me another of these hypocritical schemes, entitled, "Prospectus of the London Dispensary for Diseases of the Lungs," with the quotation underneath of, "He that giveth to the poor lendeth to the Lord." The programme commences with an awful account of the number of deaths, which are the result of consumption in London and its environs; but now may London clap its hands with joy, and the stones chip edges in merry dance, for no more will their backs creak with heavy hearses in front, and chuckling heirs in coaches behind; undertakers will have to wear their own crape; the mutes, that looked so silly sad, may turn their gilt-headed batons into paste pins. Their occupation's gone! A new constellation has left its sphere, and kindly come amongst us, in the form of a Dr. Sheriffs, to "cure consumption in every case," as he declares that he can. Yes, *cured*, and no mistake. He intimates that he is the only physician in London who understands, and restricts his attention to, consumption. Modest man! We must be cautious for the future, and not arrogantly put the question, "Can anything good come out of Nazareth;" for, on the contrary, Dr. Sheriffs is from Edinburgh, and, what is more, was, he tells us, lecturer in the college there. I myself belong to that college, and I never had the pleasure of studying under the feet of this venerable Gamaliel; but perhaps, as the Scotch say, "a glamour o'er my e'en" prevented my seeing him. However, that he possesses *tact*, I must allow, for he has been clever enough to get a lord, a silly Mecænas, to act as chairman of his embryo hospital. I wonder if "he that giveth," lends to *this* lord. Amongst his committee, I find a Dr. Prophit, and a Rev. Mr. Burnes. Perhaps the former will oblige his colleagues, and justify his name, by foretelling the fate of the Lungs' Sanatorium. Besides these, it is somewhat humiliating to behold the names of Dr. Scudamore and Mr. Partridge in the list of this contemptable concern. Perhaps Dr. Scudamore considers that, at best, it is a *gouty* hobbling thing, and Mr. Partridge will fly into cover, as soon as a good shot approaches him, lest he lose some fair feathers in the eyes of the profession. With respect, I remain, Sir, your obedient servant,

JOHN GRAY.

7, Upper George-street, Bryanston-square, Nov. 14, 1839.

PHYSIOLOGY OF MUSCULAR ACTION.

To the Editor of THE LANCET.

SIR:—Having received from a talented physician, resident in one of our northern county towns, a letter in which he requested some explanations regarding my views of the physiology of muscular action, lately published in THE LANCET, I feel myself

bound to offer the same explanations publicly, through the medium of your Journal, to any of my professional brethren, who, like my northern neighbour, may have misapprehended my meaning. May I request, therefore, that you will have the goodness to insert the following remarks, which are the substance of my reply, of which I did not preserve a copy. I have the honour to be, Sir, your obedient servant,

MARTIN H. LYNCH.

2, Queen-square, Newcastle,
Nov. 21, 1839.

Owing to the necessary condensation of my memoir, and partly because (not having leisure to write at all) I delivered a considerable part (especially the demonstrations connected with the diagrams and drawings) from short notes,—it is not stated in THE LANCET why the diagram, presenting the projecting horns of grey matter, was introduced. This diagram was brought forward in support of my decidedly expressed opinion, that *all* the fibres of the nervous roots go to the grey substance of the true cord. This opinion was decidedly and repeatedly expressed before an unusually large meeting of the Medical and Surgical Society. In fact, the horns of grey matter project towards the groove of the cord, as it were, for the purpose of meeting the fibres of the roots, which can, even by the naked eye, be traced either into these horns, or as far as a point very near to them.

Of course, I could not possibly identify the fibres of the *roots* with the fibres of the cord destined to convey volition. These latter fibres may really be considered a process of conducting filaments connected with the seat of volition. The object of my paper was to prove that the fibres of the cord in connexion with the brain, are *the sole* conductors of an influence which is NOT conveyed into the nerves; and that there are not in the nerves four classes of fibres.

In young animals the white matter of the cord consists partly of the fibres of the nervous roots (going to neighbouring or distant ganglia) and partly of the conducting fibres destined to convey mental influence; these latter are in a rudimentary state.

The true spinal motions are so perfect in the young animal because every thing necessary for their production exists, namely, the grey matter of the cord (in them well-developed) and the proper junction of the roots of the nerves with that grey matter.

MEDICAL REFORM MEETING IN THE NORTH.

THE meeting of medical practitioners of the north of England, which we announced in the last number of THE LANCET, took place on Thursday, the 14th instant, at Newcastle-upon-Tyne.

T. E. HEADLAM, Esq., M.D., in the Chair.

Having read the requisition, the chairman proceeded to observe, that at his time of life he could not look for those beneficial changes which some of them looked to; notwithstanding rising from a bed of sickness, he had felt it his duty to come there to endeavour to achieve such changes through the legislature of the country, as should place the profession upon a proper basis. The medical profession generally had not had that consideration or respect from society which its members deserved, but he trusted that by uniting together, with one object in view, the evil would be removed, the profession placed in a better position, the qualifications of practitioners clearly established, and the country furnished with the services of men of education and sound medical knowledge.

Mr. T. M. GREENHOW proposed the first resolution. He observed that there was an interest felt on the subject of Medical Reform, which deserved not only the attention of the profession, but the public at large. He could not help feeling surprised at the great disparity existing in the degree of attainments required in medical practitioners, as well as at the anomalous character of the profession generally, some having their credentials from one university and some from another. There was a want of uniformity in these respects, which was by no means satisfactory. It might be a question how far the legislature ought to interfere. There could be no doubt whatever that it was the duty of the government to protect the lives of the people, and that object could be in no way more efficiently effected, than by making such regulations as will supply the community with members of the medical profession, really qualified to practice. The institutions now in existence were ineffectual. One of these institutions was a mere monopoly, another had shown only a disposition to grasp large masses of wealth, and the third was allowed to be inefficient for the purposes required of it. Mr. G. then proceeded to point out the absurdity of upholding what he termed a distinction without a difference between the profession of a surgeon and that of a physician, namely, that as the like knowledge was required in both cases—for it was impossible to be an expert surgeon without a knowledge of medicine, or an able physician without a knowledge of anatomy—these distinctions ought to be abolished. He would have but one medical institution in the country, from whence all honours should emanate; he would abolish distinctive privileges from the profession, and have no aristocracy except the aristocracy of talent. The government of such an institution should be of a

liberal kind, the superior officers being chosen by popular election, embracing the suffrages of the entire profession. This would be the only means of ensuring its permanancy, and at the same time of realising all the advantages which such an institution was calculated to confer. He concluded by moving—"That in the opinion of this meeting, the medical profession, throughout Great Britain and Ireland, has long been in a most unsatisfactory and anomalous condition; and that owing to the defective nature of existing laws and institutions, consequences have ensued which imperatively demand the intervention of the legislature, being alike injurious to the medical profession, and incompatible with the welfare of society." The resolution was adopted unanimously.

Dr. CLANNY, of Sunderland, hoped that all the members of the profession would use their endeavours to carry into effect the suggestions which had been made, by taking frequent opportunities of addressing them on the necessity of Medical Reform. They were placed in a peculiar position. The public looked at their proceedings with a degree of jealousy. The medical profession of these islands had not the importance attached to it, nor had its members the confidence of the public, as on the Continent. It was, therefore, their duty to show as much as possible, that it was not for their own interest alone, but that of the community at large, that these important changes were desired. This would, he did not doubt, be the most effectual way of accomplishing the objects they had in view. He had to propose, —"That with a view to submit to the notice of Parliament the sentiments entertained by members of the profession at large, on subjects relating to their interests, and for the purpose of more effectually impressing upon the legislature the urgent necessity of reform in the medical institutions of this country, it is especially desirable that there should be union amongst medical practitioners."

Dr. LYNCH seconded the resolution, observing that he considered the resolution was a medico-political axiom from which no one could dissent. He would not go into matters of detail, as he conceived that their object should be to carry with them a feeling of unanimity. The number of the medical practitioners in this country, was variously taken at from 15,000 to 18,000, all gentlemen, men of education, men of property, and most of them in possession of the elective franchise; and it was impossible that such a body should not, when united and determined, obtain from the public and the legislature that degree of attention which they deserved. A considerable degree of organisation already existed in the profession; the centre and west of England had formed a Medical Provincial Association, and similar associations existed in London and in Dublin, and one was about to be established in the north of England. He hoped that our neighbours beyond the Tweed, and in Yorkshire also, would follow the example which had thus been set them. In addition to political weight, it was necessary to have the support of the public at large. Though the medical profession could number 17,000, what was that to 18 or 20 millions. It was, therefore, necessary to convince the public. He would have been glad to have seen the public present, but he noticed the presence of the gentlemen of the press reporting their proceedings. Hereafter, he had no doubt, they would shortly find their claims seconded by the community at large, and that petitions would be sent to the legislature signed by individuals who were not members of the profession. Dr. Lynch, after reverting to some of the advantages conferred on the community by medical science, concluded by seconding the resolution, which, on being put to the meeting, was carried unanimously.

Mr. JOHN FIFE expressed his surprise that empiricism should exist in the country to the extent it does. The only remedy for this state of things lay in the elevation of the qualification of practitioners, and the equalisation of the qualification. In order to effect this, it was necessary to press their claims upon the legislature, and union and co-operation amongst themselves was necessary for that purpose. He concluded by moving—"That with a view to adopt such measures as may facilitate the attainment of an improved system of medical government, as well as for the advancement of medical and surgical knowledge, and the promotion of friendly intercourse between practitioners residing in the northern counties, an association be now formed under the title of 'The North of England Medical Association.'"

Mr. BENNETT seconded the motion, which was also carried, after an abortive attempt, made by Dr. Knott, to bring his brother practitioners under the yolk of the "Provincials."—*Abridged from the "Newcastle Journal."*

PITUITARY BODY OR GLAND.

If the researches of M. Bazin be confirmed by other anatomists, the true nature of the pituitary body has at length been discovered. M. Bazin regards this body as a true nervous ganglion, and describes the various filaments which are in connection with it. The principal pass to the internal carotid artery, and join its plexus; others anastomose with filaments from the cavernous plexus. M. Bazin likewise has discovered connections between this (the cephalic) ganglion and the others which are already known, and in addition mentions one going to a ganglion on the first division of the fifth pair of nerves.—*French Lancet*, No. 127.

CHELTENHAM GENERAL HOSPITAL

October 31, 1839.

MEDICAL REPORTS,

WITH CASES AND OBSERVATIONS,

By J. M'CABE, M.D., *Phys. to the Hospital.*

HÆMATEMESIS.

HUGH REILLY, 22 years of age, was admitted into the hospital on the 14th of Oct., 1839. The following were the symptoms and history of the case. He complained of a dull heavy pain in the præcordial region, with general prostration, accompanied by palpitation of the heart, and difficulty of breathing. In stature he was thin, tall, and bending forwards, apparently from weight and pain in the epigastric and præcordial regions. The pulse small and about 100; the skin cold and exsanguine; the eye lacks lustre, and the whole appearance indicating an aggravated state of cachexia. His employment had been that of a railway labourer, and he had been much exposed to wet and cold. While employed on the railway he was suddenly attacked with vomiting of blood, for which he became a dispensary patient; he had now been eighteen weeks a dispensary patient, during which time he was twice attacked by sickness and vomiting of blood. The house-surgeon had seen him on one of these occasions, and the quantity of blood thrown up he considered to be about a quart. It was dark and grumous, as if some time stagnant before it was rejected. In this state, and at this stage of the disease, he was received into the hospital and had the following medicines:—

℞. *Infusion of roses* ℥vi.
Sulphate of magnesia, ʒvs.
Tincture of jalap, ʒii.
Tincture of hyoscyamus, ʒss.

Two table spoonsful every second hour, until effective; to have at bed-time the following draught:—

℞. *Sedative liquor of opium*, xx;
Balsam of tolu, ʒi;
Camphor mixture, ℥i. Make a draught.

A nourishing and unirritating diet was directed and quietude enjoined.

These medicines were continued at suitable intervals for some days, and an anodyne liniment rubbed into the epigastrium and cardiac region. No blood had now passed upwards or downwards since his admission into the hospital. The following medicines were prescribed:—

℞. *Infusion of roses*, ℥vis;
Sulphate of quinine, gr. xii;
Balsam of tolu, ℥ss;
Sedative liquor of opium, xxx. Two table spoonsful every hour.

℞. *Extract of lettuce*, gr. ii.;
Extract of hyoscyamus, gr. ii. Make a pill, to be taken every night.

These last medicines are still continued, occasionally having recourse to the aperient mixture; his appearance is considerably improved, and although he has been now (October 31st) above a fortnight in the hospital, no blood has been passed.

What may be the pathological state of the organs in this case, can be only matter of conjecture. In cachectic cases the blood recedes from the surface of the body and capillary vessels, and accumulates about the heart and central organs, producing in these organs congestion, reaction, and excitement. The diminished vitality of the vessels renders them less capable of resisting the excited impulse of the circulation, and the result may be as in this case—internal hæmorrages, from the spongy structure of the spleen, the portal vessels of the liver, or the spongy and villous coat of the intestinal tube. In such cases we must endeavour to restore the balance of the circulation, to bring the blood back to the surface of the body, to diminish reaction by sedatives, to prevent intestinal congestion by mild and unirritating aperients, and finally, to restore tone to the general system, by diet and unstimulating tonics.

(To be continued.)

GUY'S HOSPITAL.

SPONTANEOUS GANGRENE OF THE FINGER.

Ellen Davis, aged 44, who has obtained her living by mangling, and hitherto enjoyed good health, was sitting up to finish some needlework, when, about two o'clock on Sunday morning, Oct. 6, she was seized with a sudden and agonising pain in the fore-finger of the right hand. Can conceive no cause for its occurrence. In a short time severe shivering and great nausea came on, and the finger was a little swollen. A surgeon was called in, who applied four leeches, and ordered some opening medicine. She got no sleep on Monday night, and was admitted on Tuesday morning, Oct. 8. She was ordered a saline mixture, with excess of ammonia, and camphor mixture. Throughout Tuesday very severe rigors continued to harass her; she felt very much exhausted; pulse 140, and very feeble. In the afternoon the arm began to be red and swollen, and very painful along the course of the absorbents, and the fore-finger became of a tawny yellow colour. She took an opiate at night, which afforded her some refreshing slumber, and she felt better on Wednesday, when the surgeon saw her. The distal joint of the finger was now quite black and gangrenous, and there were one or two vesicles on the back of the hand, which was red, and much swollen. By gangrene we here mean that state of parts which precedes their actual death. The surgeon remarked

that her age discountenanced the idea of gangrena senilis, and ordered a stale beer-ground poultice for the hand, evaporating lotion for the arm, and opium at night. To continue the ammonia mixture.

Oct. 10. Arm less swollen, easier; feels very low; pulse 120; face pale and shrunken; skin cool. Continue medicines.

She was afterwards ordered half a pint of wine daily, and a quinine mixture. The finger remained for some time without a return of sensibility, but she is now well.

ST. GEORGE'S HOSPITAL.

DISEASE OF THE BRAIN.—ABSENCE OF HEMIPLEGIA.

Alexander Hamilton, aged 36, shoemaker, was admitted September 11, 1839, under Dr. Wilson. He has been ill for the last three years, and unable to assist his family. He has suffered from pain in the arms, particularly the left, which is weaker than the other. His wife states that he has been "strange" for a long time, "not caring about anything." Complains now of pain over the *entire* head, from which he has suffered constantly for the last six weeks; also of dimness of sight, particularly of the left eye, the lid of which droops lower than that of the right. Sleeps pretty well; bowels open; tongue clean; dull sallow complexion; no hemiplegic symptoms present. Was ordered cupping to 8 oz., on the temples; saline draught with sulphate of magnesia, twice a day.

12. The pain was relieved after the cupping, but is much the same now; his manner indicates much distress.

Croton oil, 1 drachm;
Olive oil, 4 drachms;
A *Liniment* to be applied behind the ears every night.

Repeat draught.

From this time to the 30th, he went on much the same, never complaining unless when asked respecting his sufferings, and then referring the pain to the *entire* head.

30. Had a fit in the night, lasting about ten minutes, during which he was much convulsed; rather drowsy. Continue the remedies.

Oct. 1. Not so heavy or drowsy; complexion lighter. Continue remedies.

4. Was attacked this morning with sickness, immediately after his breakfast. The nurse reports that he was "very heavy, and seemed lost" after the meal; does not recollect ever having a similar attack before.

Comp. decoc. of aloes. ½ oz.;
Comp. spirit of ammo., j. scr.;
Camphor mixture, j. oz.; twice a day.
Calomel, iii. grs.; at night and to-morrow night.

7. Has had several attacks of vomiting since last report, and this symptom seems to be establishing itself; the matter ejected was a dark greenish fluid. Complains of pain over the head; bowels confined; pulse natural; cannot recollect things which occur from day to day. Continue draught twice a day.

Senna draught to-morrow morning.

10. Lies in a sleepy state, but is sensible when roused; bowels confined. Repeat draught as before.

A *common enema* at night.

16. Has brightened up a little for the last day or two; takes his food better; says he feels better. Repeat the medicines.

21. Much the same; bowels open, but passes his motions in bed in the night.

Solut. of bichloride of mercury, 1 drachm;
Water, 1 oz.; twice a day;
Enema at night.

22. The enema was ejected immediately after being given; says he has no appetite. The draught, three times a day.

25. Much the same; passes everything in bed; very drowsy. Continue.

26. Was sick this morning in the bed, without giving notice to the nurse; had a fit at about 2 P.M., and was again sick another convulsive fit at about 4 P.M., not quite so violent. Soon after this hour he sank.

Autopsy 38 hours after Death.

Head.—Arachnoid membrane exceedingly dry; pia mater much injected; convolutions much flattened; vessels on the surface congested. Anterior half of the left hemisphere very much softened, almost to the consistence of thin curd. Disease apparently commencing in a schirrous lobulated tubercle, of the size of a large walnut, situated over the left superior orbital plate, and passing backwards as far as the fissure of Sylvius; the frontal bone over the tubercle being very much absorbed, and in one place perforated. The tubercle appeared to press on the supra-orbital nerve, after its exit from the foramen. The substance of the brain pale, and very free from blood.

Thorax.—A quantity of bloody effusion in the cavity.

Lungs.—Healthy.

Heart.—One of the aortic valves deficient in part, and the mitral valve much attenuated.

Abdomen.—Spleen very large, but healthy.

Liver.—Universally tuberculated by well-defined globular fibrinous deposits of various sizes, with many deep fissures on its surface.

Kidneys.—Healthy.

THE LANCET.

London, Saturday, November 23, 1839.

A CORRESPONDENT, whose character we do not deem it necessary to describe, has thought proper to inquire of us, in impertinent terms, whether, after the decision of the Court of King's Bench, on Monday last, in quashing an inquisition in consequence of "its ignorant informalities," the public will not think that it would have been better, in February last, to elect a legal instead of a medical Coroner for the county. Fortunately for the generality of mankind, the conduct of men of our correspondent's stamp is less remarkable for discretion than malevolence. The blockhead who, in skimming the newspapers of Tuesday last, saw that an inquisition, prepared in "Middlesex," had been quashed by the Court at Westminster, concentrated his eye and his spite only on one point, and instantly, with the customary want of caution of some knaves, added to his list this fresh proof of the incompetence of Coroners who have not been "bred to the law," to fulfil the duties of their office; and then, taking pen in hand, instantly gave vent to his united joy and spleen in a letter to THE LANCET, with a threat that if we declined to act with impartiality, and insert his rubbish in THE LANCET, he would call "public attention to the facts in the political journals, "which, strangely enough," as he considers, "have overlooked the decision against the "inquisition!" Triple-stupid blockhead, who neither understands the "impartiality" of THE LANCET, nor the peculiar partialities of the newspaper editors! Why, the quashed inquisition was the handy-work of a *gentleman belonging to the profession of the law.*

The question, however, which has been proposed to us shows, clearly enough, that in less than a week from this time it may be proclaimed throughout the county that the annulled inquisition was drawn by the medical Coroner. When the case is fully recorded in any accredited legal work, we will present to our medical brethren a copy of the report; for they must not, through the want of an authentic statement of the facts in this journal, be kept from possessing a document which cannot fail to prove valuable to them in their efforts to procure, in every part of England, the appointment of properly educated men to the office of Coroner.

In the mean time, we shall insert here a summary of the facts as they were given in the newspapers of November 15 and 19. Talk of Attorney Coroners, indeed!

COURT OF QUEEN'S BENCH,

Thursday, Nov. 14, 1839.

THE QUEEN V. BROWNLOW.

A rule had been obtained in this case calling upon Mr. William Baker, Coroner for Middlesex, to show cause why an inquisition taken before him on the 16th of June last, on view of the body of Andrew Brown, should not be quashed for uncertainty. The party was killed by the bursting of the boiler of the Victoria steamer in the river Thames on the 14th of June last, and an inquest was held on the 16th of June, when the jury found that 'a certain boiler containing hot water, forming part of a steam-engine, and used in working the said steam-engine for the propelling of the vessel, had burst, and that a large quantity of steam and water, and of coals, forming part of the fire, being then and there employed in working the said steam-engine, were cast on the said Andrew Brown, who was thereby mortally wounded, of which said mortal shock and concussion, and of the said mortal scalding and burning, the said Andrew Brown, instantly died.' The jury also awarded a deodand of £1,400 upon the boiler of the steam-engine. The objections taken were, first, that the *names of the jury* were not set out in the inquisition at full length; second, that *no place or time* was stated when the death had occurred; and, third, that the jury found a deodand on the steam-engine, whereas the cause of death was the bursting of *the boiler.*

The ATTORNEY-GENERAL, Sir F. POLLOCK, and Mr. WIGHTMAN, now showed cause against this rule, urging that the return of the jury was sufficient. With regard to the objection as to the *signatures of the jury*, the answer was that they had signed their names in the manner in which they were accustomed to affix their signatures, but in the body of the inquisition the names of the jury were set out at full length; and in the case of "The King v. Everett" Lord

Tenterden had held that to be sufficient. With regard to the second objection, nothing could fix the *time* and *place* more than the words used on the occasion, for the day of the occurrence was stated, and then it was said, "of which injury he instantly died." As to the point, whether the death was sufficiently connected with the *steam-engine* to support the verdict of the jury, as to the deodand being put upon the engine, the boiler and engine formed but one instrument in causing the death, although perhaps the bursting of the boiler might have been the actual cause of the death. Still the boiler was part of the engine, and the two could not be disconnected.

Sir W. FOLLETT, Mr. PLATT, and Mr. KELLY, in support of the rule, urged that the inquisition was bad upon the face of it. The authorities went to show that the names of the jury *ought to have been signed at length*. As to the second point, the time of the death was not *sufficiently defined*; the word "instantly" was not recognised by the law, but the words "then and there" were always used. Then, upon the third point, it was evident that the engine was not the moving cause of the death, for that was occasioned by the *bursting of the boiler*, and that must be considered as distinct from the engine.

The Court stated that it would give judgment in the case on another day.

Monday, November 18th, 1839.

THE QUEEN *v.* BROWNLOW.

Lord DENMAN delivered the opinion of the Court in this case. The first point sought was to set aside the inquisition for a supposed absurdity, but it would not be necessary to enter into that question, as their Lordships were satisfied that there were two defects in the inquisition which must prove fatal to it. First, there was *no time* stated when the explosion of the boiler took place. The allegation was, that on such a day the deceased being on board, the boiler exploded on the day mentioned, and he was then killed. This form of the averment did not state the day. The second point stated, "of which blow, &c., the deceased, at the place aforesaid, instantly died." It was contended that this allegation was deficient in preciseness, but it was argued on the other side that the word "instantly" was equivalent to stating a time, and would be sufficient; but the Court thought *it was not*. "Then," or "*ad tunc*," meant the very time the event happened, but the Court did not know what the pleader might mean. "Instantly" might mean five minutes after, or an hour after, or the succeeding day; or longer. In a similar instance the Court would be inclined to put the party to his demurrer; but on the present occasion, after having heard so full an argument, the Court would not send the case back.

The inquisition was therefore quashed.

Our short-sighted correspondent,—not casting a glance beyond the few lines reported on Tuesday, ending with the interesting morsel of intelligence that "the inquisition was quashed," and forgetting every other fact, in his blind predilection for Attorney Coroners, excepting that the event had occurred in *Middlesex*,— is surprised that the newspapers, which have so vigorously attacked, and so often libelled, the Medical Coroner, should omit to reproduce the decision of Lord DENMAN in the more conspicuous parts of their journals. The reason is palpable enough. Had Mr. WAKLEY been the Coroner in this case, every morning newspaper in the metropolis, with one exception, perhaps, would have had its "leading article," complaining of his conduct, and holding forth his "incompetence" to public condemnation. A few days since, a report which had come all the way from *Bath*, of an inquest on a boy who had been burned to death, on which occasion the Coroner, Mr. ENGLISH, condemned the practice of public "rejoicings" on Guy Faux-day, as founded in ignorance, invariably dangerous to the public peace, and repeatedly fatal, was eagerly seized by a London journalist, and made the subject of editorial deprecation in a long article on the "Popery" question. That served the purposes of faction.

But the quashing of an inquisition drawn by an *Attorney* Coroner, in the metropolis, under our very noses, in the high season of attention to Middlesex Coroners, elicits not a word from any daily journalist in London. Even in the *report of the judgment* delivered by Lord DENMAN, and published on Tuesday, when it was to be announced that an inquisition in Middlesex was quashed, the paper adroitly managed to report the affair without allowing his lordship to mention in print the name of his brother lawyer. Oh! it is an honourable and an upright press; a most impartial and pure instrument of public justice, exercised and controuled only by virtuous minds. We should not wonder—

unless our correspondent thinks it right, by this time, to change his mind—if he procured the insertion of his disquisition in one of the daily journals. The friendly disposition of the *Morning Herald*, for instance, for misrepresentations, would insure publicity to his communication.

In reverting frequently to the subject of Coroners' inquests in THE LANCET, our readers will bear in mind, that only on the single-handed exertions of this portion of the London press can any hope be founded of effecting a change in the absurd custom of appointing attorneys to the office of Coroner. The public mind requires much trouble to disabuse it of ancient prejudices, and the press never effects any great change in the habits and opinions of a large community without constantly returning to the subject of error, and repeatedly making manifest, in one form or other, its mischief and absurdity.

THE newspapers of this week announce that Dr. ROOTS has resigned the office of Physician to St. Thomas's Hospital, and that a Dr. LISTER, an Assistant Physician in the same Hospital, has obtained the post vacated by Dr. ROOTS. The nook left by Dr. LISTER has been filled up by a Dr. BARBER. Of Dr. ROOTS the whole medical world knows much,—to his credit and reputation. To the name of Dr. LISTER only a fraction of repute attaches, and that in the annual prospectuses of the hospital. To that of Dr. BARBER not a fraction of fame. What matters this, in elections to our Hospitals? Private interest is omnipotent in such appointments. ANDRAL or LOUIS, were they Englishmen, if they knew not personally the governors of those institutions, and their weak points, could not obtain even sub-assistantships in any Hospital in London—not even in a foul Dispensary. Year rolls after year, and not an effort for reform in the mode of these appointments is made *from within*. Up to the last moment it will be from Parliamentary interference alone, urged on by the independent portion of the medical press, that an alteration will be effected in the administration of medical relief in our public charities. The governors will have nothing to do with any virtue in their appointments, but the virtue of *necessity*. The fame, the honour, the advantage, of a concours for office in St. Thomas's, or any other Hospital, never outweighs the persuasions and earwiggings of mediocrity and imbecility. So strong a hold has this corrupt system obtained on all those individuals who contrive to possess electoral influence in the medical institutions of this country, that even an institution which was founded expressly to break down the prevailing system, and set a bright example to the rest of the medical world, now takes rank amongst the vilest imitations of the old mode of election, and is odiously prominent for corruption in the appointments of its medical staff and Professors.

In Edinburgh, Dr. HAMILTON, the Professor of Midwifery, has recently departed this life, and created a vacancy in one of the University chairs. The election of his successor is vested in the Town Council, who really seem as though they hoped to do right in the appointment, though they appear not to know how. At a recent meeting of the Council,

"The LORD PROVOST said it was the duty of the Council *prudently to look around them* for a *fit* and *proper* person to fill the vacant chair; and he trusted that members would see the propriety of not pledging themselves, but would wait till all the candidates had come forward."

His lordship clearly has a notion that the Council *may* do wrong. His experience has proved to him the possibility of mistakes at such elections. Yet he recommends caution and prudence under a bad system instead of boldness under a good one. He would look around for a fit and proper person, but cannot tell him when he has found him. Among a dozen candidates, how could the non-medical Council guess the right? Fortunately, however, to be *prudent* is very near to being *correct*, and we recognise even this "feeling in the dark" with pleasure.

It will, by and by, prevent a falling plump over the abyss. To know that we *may* err, is precedent to the avoidance of error.

"It was then stated (at the meeting) that the candidates from whom communications had been received were Dr. Robert Lee, of London; Dr. Kennedy, of Dublin; Dr. Campbell, Dr. Thatcher, Dr. Macauley, and Dr. Renton. Dr. T. Y. Simson was understood to be a candidate also."

What is to be done with the six candidates? Hustle them well in a sack, and then let the town-clerk seize the top man by the hair. The present plan of intrigue and solicitation cannot be worse. Nay, it is not so bad. The best teacher may be caught in the one case; in the other, the Council will have the best courtier. In either event, what injustice to the students, how great a wrong to medical science! My Lord PROVOST and Honourable Councillors, let the candidates compete. Put them to the *mental trial*. Test their capacities to fill the post of oral teacher by a few public lectures on the practice of midwifery.

The candidates, however, do not anticipate the adoption of this terrific proceeding, for every post to London and Dublin carries from Edinburgh urgent prayers for TESTIMONIALS. "Send us TESTIMONIALS!" And he who can produce in his favour the largest batch of fulsome lies under this name, is to win the chair. Shame on such a scheme for finding "fit" and "proper" instructors of youth! Prudence, indeed! That cannot avail anything in so radically bad a case.

But the candidates themselves ought to demand a change in the plan. Self-interest should induce them to demand it, for the vicious system is suffering a reaction. The election of inefficient Professors is defeating its own end. Even the appointment of Sir CHARLES BELL is regarded in Edinburgh as a "failure," and the income of his chair is fast diminishing. Sir CHARLES was not chosen to teach surgery in that city because he was a good instructor in surgery. A first-rate physiologist in the dissecting-room, he was elected a surgical Professor in the University as a compliment and reward to his acquirements and services in an isolated department of science. However praiseworthy the motives and sympathies of the electors, their feelings were directed only to honour and serve CHARLES BELL. They forgot the students. The appointment of Professor TRAILL is equally "a failure" in Edinburgh, and the students are sick and tired of the whole system. Ask those gentlemen, my Lord PROVOST, whether they prefer the lying testimonials of the candidates to the mental and oral tests. Have they not good sense and spirit enough to hold a meeting to address the Council on the subject? Children in a "ma'am's school" could not be more supple to the old women at its head, than the students of this kingdom have generally hitherto been under the nomination of their instructors. It is time to change this supine conduct for a more manly and reflecting course.

In the list of competitors, we see the name of Dr. ROBERT LEE. Of course. This worthy gentleman has been a candidate for almost every vacant medical office since the creation.

"MEDICAL TESTIMONIALS."

(From a Correspondent.)

THE arts by which the Quack endeavours to attract and secure his victims are truly multifarious. His fine-spun web, as subtle and not less fatal than that of the spider, hangs up in every quarter of the United Kingdom. The trade, in fact, is a flourishing one. The practice of medicine is so simple! With a pill and a potion he cures all the "ills that flesh is heir to." He is born a physician; he has sucked in the "divine art" with his mother's milk; or, rather, he springs up like one of CADMUS's warriors, full-grown in a day, and armed to the teeth for destruction.

A royal road to learning and to wealth having thus been discovered, it was natural that it should soon become crowded with travellers. Such is the case. The impostors

have increased and multiplied in the most surprising degree, and although in one respect unlike PHAROAH'S *lean kine*, they are devouring one another. The competition in Quackery is great, thanks to the *laissez-aller* system of our enlightened rulers, and, to distinguish himself from the vulgar, the thriving Charlatan is compelled to stretch his inventive powers to the utmost pitch. Amongst the expedients which have been recently adopted by one of this class of adventurers, our attention has been directed to a bare-faced forgery affecting the name of a respectable physician. In the *Times* newspaper of November 5, 1839, there appeared, as an advertisement, the following precious morcel:—

"The newly-invented spectacle lenses of the Messrs. —— appear to lift the veil of indistinctness thrown over the *beauties of nature* and the *page of love* by dim or defective eye-sight, is an acquisition of no common interest to the thousands who require them. I have been using them for some time, and say, from experience, that they afford most astonishing relief to individuals thus circumstanced.

"F. H. RAMSBOTHAM, M.D."

Need the reader be assured that Dr. R., however ominous his name may be, never required Messrs. —— lens "to lift the veil of indistinctness from the beauties of nature;" in a word, that Dr. F. H. RAMSBOTHAM never wrote a word of the trash which these Quacks have unblushingly attributed to him?

Dr. RAMSBOTHAM, on being informed of the liberty which had been taken with his name, at once compelled the advertising parties to suppress the paragraph in question; but a similar imposture will probably be practiced on other persons, for in the concluding sentence of a letter addressed to Dr. RAMSBOTHAM, the guilty parties say, "now, sir, if you wish to have your "name withdrawn altogether, we have not "the least desire to use it, as we have a great "many other medical gentlemen of high cha- "racter and reputation, which we cannot "(have not?) used, and we can place one of "those in your place."

Is it not full time for medical men of *character* and *reputation* to separate themselves from advertising Quacks? Can the profession be respected when the highest names are either lent or sold to the lowest of adventurers?

BRITISH MEDICAL ASSOCIATION.

November 20, 1839.

The minutes of the last ordinary meeting of council having been read and confirmed, the following gentlemen, being duly proposed and seconded, were unanimously elected members of the Society:—

— Price, Esq., Stamford-street, Christchurch.
H. Callis Day, Esq., Cumberland-place, Old Kent-road.
— Hawkins, Esq., Virginia-terrace, Great Dover-road.
W. Lambton, Esq., Paradise-row, Rotherhithe.

Letters were read from Wm. Wood, Esq., of Edinburgh, and Dr. Maunsell, of Dublin, on the objects of medical reform, which were referred to the consideration of the "Reform Committee."

The President read portions of a considerable article in the *Newcastle Journal*, giving an account of the medical meeting of the northern counties, at Newcastle; when, after some remarks, the following resolution was unanimously adopted:—

"That the proceedings of the meeting (at Newcastle) having been brought under the notice of the Council, the members express their satisfaction at the formation of the North of England Medical Association; and, from the objects contemplated by its founders, the Council hail with much pleasure the acquisition of so numerous a body to the ranks of medical reform."

Other routine business of the Association having been disposed of, the meeting proceeded to the consideration of the proposed Sanatorium, adjourned from the special meeting of the 12th November past to this evening, which, at a very late hour, ended in the following resolution:—

"That the proceedings, speeches, &c., on the subject of the proposed Sanatorium, be arranged with a view to publication.

The meeting then adjourned until Tuesday, Dec. 3.

CORRESPONDENTS.

Letters have been received from *Dr. M. Hall, A Barrister, A Late Pupil, Mr. Scoffern, Mr. Coward, An Experienced Practitioner, Mr. Major, Mr. Hitche*, and *Mr. Sutton*.

Juvenis.—Diet, as well as physic.